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Correspondence.—Wishing to make this JOURNAL a gazette of intelligent discussion to those of our readers who may wish to gain or give information on the subjects to which its columns are devoted, correspondence is solicited for publication from all who make the study of those subjects a pleasure or a profession.

The Public Lighting Tables of the American Meter Company will be found in the page advertisement of that Company.

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[OFFICIAL NOTICE.]

Respecting the Official Work of the American Gas Light Association.

AMERICAN GAS LIGHT ASSOCIATION,
SECRETARY'S OFFICE,
530 Broadway, N. Y., Dec. 13, 1904.

To the Members American Gas Light Association: As there seems to be some misunderstanding respecting the standing of the official management of the Association, members will please note that the undersigned is the Secretary of the Association, and that Mr. A. E. Forstall is carrying forward the work of the Practical Class. All correspondence in connection with the Practical Class should therefore be addressed to Mr. A. E. Forstall, 58 William street, and all other matter pertaining to the Association to MR. GEORGE G. RAMSDELL, Secretary, at the above address.

BRIEFLY TOLD.

THE TWENTIETH REPORT OT THE MASSACHUSETTS BOARD OF GAS AND ELECTRIC LIGHT COMMISSIONERS.—We are indebted to Mr. F. E. Barker, Chairman of the Board of Gas and Electric Light Commissioners for Massachusetts, for a copy of the Commission's Twentieth Annual Report. It is in every right sense indicative of the continued good work that the Commission has done, and is complete proof that, if statistics count for anything, the gas industry of Massachusetts (outside of the squashy situation in Boston) is on a stable scale. As far as Boston is concerned, the Augean State House is responsible therefor, respecting the gas situation, in that the Boston headquarters went well over the heads of the Commission. In fact, it looks to us that the Commissioners' report is, as usual, an "answer box" instead of a questioning one. The Commission and its workings are a credit to the ordinary senses of those who framed it, and the type of work that it does could be profitably followed in other States by those concerned in the industry of gas making.

NOTES——

MESSRS. M. P. QUINN, H. M. Ueberroth, C. R. Kugler and H. D. Hughes will apply to the Governor of Pennsylvania, on the 19th inst., for the charter of an incorporation, to be known as the West Bethlehem Gas Company, "the character and object of which will be the supply of gas for light only to the public in the borough of Bethlehem, West Side, Lehigh county, Pa.," etc.

THE State Department of Pennsylvania has granted a charter to the projectors of the East Pennsboro Illuminating Company, the accredited purpose of which is to supply gas for illuminating purposes to the residents of East Pennsboro township, Cumberland county. Mr. A. A. Clark is Treasurer of the concern, and he may be addressed at Enola, Pa., where we understand the plant is to be located.

THE Gas Burner Company, of Houston, Tex., has been incorporated by Messrs. Joshua Miller, C. O. Preston and E. S. Rossen. It is capitalized in $10,000.

THE Directors of the Beaumont (Tex.) Gas Company have voted an expenditure of $25,000 for main extensions. This would seem in line of speedy progress, remembering that the Company is not in the field for public favor over 3 years.

LIBRARY OF CONGRESS
APR 3

THE Board of Supervisors of San Francisco have rendered a final decision fixing the gas rate that may be charged to residents at $1 per 1,000 cubic feet. The named rate is to rule for the ensuing twelve-month.

A CORRESPONDENT in Leeds, England, writing under date of the 16th ult., says: "Quite likely your readers will be interested in the unique design of a coal handling plant, for which the Lea Bridge District Gas Company has placed its order with Messrs. Graham, Morton & Co., of this city. The plant, which is to be constructed under the plans of Mr. F. W. Cross, is complete, and although simple in conception, such fact will not deteriorate from its effectiveness in operation. The plans show a hydraulic wagon tipper, capable of raising an ordinary standard railroad wagon to an angle of 46°. The wagon tipper is suitable for a working pressure of about 700 pounds per square inch. This hopper is fitted with a flat bar screen on the top, so that all the large coal can be broken before passing to the elevator. The underside is arranged to accommodate a jigger feeder for regulating the supply of coal to the elevator. The latter is of the cased in type, and its dimensions are 18 feet, 45 inches between centers. It is provided with a breeches shoot at the head, with flap door and levers for operating same. The band conconveyor is of the 16-inch standard type, 106 feet between centers, and capable of conveying 25 tons of coal per hour at a normal speed of 200 feet per minute. A standard, travelling throw-off carriage, for delivering the coal on either side of the conveyor, is to run the entire length of the stores. The friction gear is arranged so as to adjust the running of the carriage in either direction, as required. The general outlook for gas trading in this part of England was never brighter."

ABOUT the most unreasonable measure so far introduced in the New York Legislature this year, and that is saying much, for very many unreasonable ones have been proposed, is the special measure brought out by Assemblyman Maier, who asks that the selling charge for gas in the villages of Seneca Falls and Waterloo shall not exceed $1 per 1,000 cubic feet. The price in itself is confiscatory, but when to the rate is added the following stipulations as to candle power, what expression will fit the case? "The gas shall have an illuminating power of 25 sperm candles, of 6 to the pound, when tested at a distance of a mile from the place of manufacture, through a burner consuming 5 cubic feet per hour!" Do the Assemblyman's friends own an interest in any diseased electric lighting plant in the vicinity?

THE Common Council, of Lawrence, Mass., has ordered a public hearing to-day, the question at issue or for debate being whether or not it would be advisable to engage the city in the operation of a gas plant on municipal account.

MUCH opposition has been and is being manifested against the desires of those who wish to establish and operate a gas plant in Norfolk, Conn. The electric interests that have the Norfolk field are the main objectors, naturally. Why do they not build a gas works? It would pay them.

MR. JOHN MOORE, for some time prominently identified with the new business department of the Denver (Col.) Gas and Electric Company, is now in full charge of the new business department of the Portland (Ore.) Gas Company.

A FEATURE of the convention of the engineers, managers and superintendents of the United Gas Improvement Company, which was brought off in Philadelphia towards the close of last month, was a luncheon at the Bellevue-Stratford Hotel, given by Mr. Samuel T. Bodine, Vice-President of the Company. About 100 guests shared in the feast, the "spread" for which was arranged in the Boldt mansion's famous "Clover Room."

THE average resident of Wheeling W. Va., complains bitterly that, if he does not want to use gas for the illumination of his premises, he is compelled to inhale it whenever he walks along the city's streets. The gas supply of Wheeling has for years been under municipal control, and the failure to properly keep in repair the distribution systems, to say nothing about the extending thereof, has resulted in a leakage that is simply vicious. The engineering staff is not to blame, for the Council, instead of giving living funds to the gas makers, actually diverts every possible cent of their flat income to the upbuilding of unproductive city improvements.

THE proprietors of the Hartford City (Conn.) Gas Light Company have modified their original notification, that a meter charge of 50 cents per month would be made in all cases where the use of gas called for the payment of a less sum per month, to read: "That where the use of gas in any calendar year shall amount to $12 per meter, any amount over and above gas charges due to service charge shall be rebated on application of the consumer.

[OFFICIAL REPORT.—REVISED BY THE SECRETARY.—CONCLUDED FROM PAGE 488.]

THE THIRTY-FIFTH ANNUAL MEETING OF THE NEW ENGLAND ASSOCIATION OF GAS ENGINEERS.

HELD IN YOUNG'S HOTEL, BOSTON, MASS., FEB. 15 AND 16, 1905.

SECOND DAY, CONCLUDING SESSION.

The President—The paper by Mr. E. H. Yorke, of Portland, Me., on

GROUNDING WIRES ON GAS PIPES,

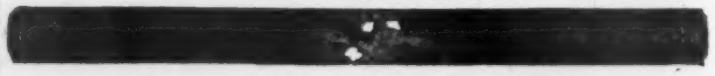
will, in the absence of the author, be read by the Secretary.

The Secretary read as follows:

It will probably be generally conceded that the practice of grounding telephone and electric bell wires on gas pipes is, from every point of view, a bad one. Before the advent of the electric light with its high tension currents, no practical disadvantages followed this procedure. When, however, electric wires were introduced in buildings, and not always run with due regard to preventing crossing and contact with bell and telephone wires, new conditions were created.

A few instances will illustrate this point. A jobber placed his wrench on a meter union to remove meter, when the next instant he found himself on the floor, on the opposite side of the cellar. Another jobber, when about to do some burner work was severely shocked. Again, a consumer tried to change a burner, but could not do so because of the fixture being heavily charged with electricity.

We were thus admonished that a continuation of these conditions would operate to our disadvantage, and to the end of correcting them had an inspection made of all consumers' meters and piping. The Inspectors' reports showed hundreds of instances of wires grounded on gas pipes, and electric light wires in dangerous contact with these wires. All these cases were reported to the city electrician, who caused orders to be sent for the removal of these grounds. The Insurance Inspector also co-operated, all of which resulted in a better order of things. There was, however, one consumer who did not promptly obey the mandate of the city electrician, and the results were somewhat disastrous. During a severe thunderstorm the lightning followed the wires, melted three holes through the gas pipe, ignited the gas, set the building on fire, and destroyed considerable property. The accompanying illustration may make the last case plainer.



Discussion.

The President—A great deal of truth is conveyed in that short paper. The practice is reprehensible and objectionable, and ought to be prevented in every community. Is there anyone here who is operating under any direct or distinct understanding or agreement between the companies—the telephone, electric light and their own gas company—in regard to this one particular feature?

Mr. W. A. Learned—I think there are insurance laws to-day that do not allow automatic gas lighting and electric lights on the same fixtures.

BURNED OUT.

The President—I think that practice has been entirely discontinued, where any care is taken by the gas company or the electric company to see that it has been proposed. It is exceedingly dangerous. The members of the Association will be very sorry to learn of the destruction of the Salem (Mass.) gas works last night. A report (perhaps many of you know it) came this morning of its entire destruction by fire. The details I am not acquainted with; the bad news came just before the meeting opened. Perhaps Mr. Prichard can tell us concerning it.

Mr. Prichard—I have talked with the people over the telephone and interviewed one gentleman who was there. The coal shed was a wooden one, holding, as I recall it, about 6,000 tons. There were 3,000 tons of coal in it. The shed is built in part on a pile wharf. Connecting the coal shed with the retort house for 100 feet or so was a wooden covered runway, and at the end of that, adjoining the retort house, was a room used by the men for a wash room. Apparently the night shift, in going off this morning at 6 o'clock, left some fire, either a pipe or a carelessly thrown down match or something. The first that was noticed was that the fire had started in this little room adjoining the retort house. The effect of the covered passage through which they carried the coal was to form a flue, and the fire was immediately drawn into the coal shed, and before the fire department could get on the ground the whole coal shed

was wrapped in flames and is a total loss. They apparently could not control it at all. Meanwhile, the fire worked back the other way into the retort house and mixed things up there by burning out the doors and window frames. In the excitement probably a vacuum was drawn in the retorts, producing a low candle power, and the whole thing seems to be a bad mix-up, but they telephoned me within an hour or so that one of their holders was filled with good gas, and they would have no trouble in supplying the city to-night, and thought they would probably have no trouble with candle power. There was insurance on the shed and on the coal of some $20,000. The Superintendent, Mr. Mansfield, says this morning that probably the interior of the coal pile is fit to use again to some extent. Meantime, they are teaming coal from an adjoining city and have a barge of coal, which fortunately happened to be in Boston, on its way down now.

The President—Fortunately, not as bad as first reported. Mr. W. A. Learned will now read

SOME NOTES ON ASPHYXIATION:

The author prefaced his communication by saying that the notes had been read the Saturday prior at the regular meeting of the Guild of Gas Managers, and that that Secretary suggested they be read here. Mr. Learned proceeded as follows:

When a person is overcome by gas the first symptoms are headache, dizziness, feeling of faintness and more or less blurring of the eyes, also, sickness in stomach. What are we to do with a person so affected?

First of all, take him from the source of danger to a place where he will get plenty of fresh air. Do not lose time, but be as quick as possible, for every second means a great deal to a man's life. Place him, if possible, on something flat, or where you have a good level spot of ground, with a coat or blanket under his head. Then start artificial respiration. Start at it immediately. It is a simple measure when understood and properly carried out. We breathe 16 to 20 times a minute and that is the rate at which artificial respiration should be done. Kneeling at the head, take the arms close to the elbows and draw them upward and outward, then draw them inward and downward, pressing on the lower chest. Have another person press on the abdomen when the arms are brought down. Oxygen can be administered through the nose when artificial respiration is being performed. Another important consideration in persons asphyxiated is the tongue. The jaw goes back with the tongue, closing the windpipe. Press the index fingers behind the jaw and, with the thumbs on the chin, press the jaw forward, or take a piece of cloth or handkerchief and draw the tongue forward with the head inclined to one side. Keep artificial respiration going at least ½ of an hour, even though the patient should show no signs of life. Keep at him until he breathes naturally and regularly 16 to 20 times a minute, and until his color becomes normal and consciousness is regained. The color of the finger nails and the lips is the best way of telling when to stop. If the individual should vomit turn him on one side and push the jaw forward, otherwise he might strangle to death by the substance entering the windpipe.

Don't let the man die of exposure. Keep the lower limbs and trunk well covered. Put bottles filled with hot water, when possible, outside of coat. Maintain body heat but do not burn him.

The next important step is the use of oxygen, which should immediately be resorted to, whether breathing naturally or artifically, as by this means the introduction of oxygen into the lungs will assist the process of getting rid of the illuminating gas, which is injurious to health. The best way to give the oxygen is through a soft rubber catheter placed in the nose for a distance of about two inches. There is no use to give oxygen unless the individual is breathing or artificial respiration is being performed. It is better to have the wash bottle attached to the tank to note how quickly it should flow. Keep on giving the oxygen as long as the man is blue.

The use of stimulants is not particularly called for, except in cases of weak heart, the relief of which can be accomplished by the use of hot black coffee, or by placing a few drops of ammonia water on a handkerchief and letting him inhale. Doctors disagree in regard to the use of whiskey or brandy as a stimulant, in such cases.

Where there is a large supply of illuminating gas in trenches, no workman should be allowed to remain at work more than from 2 to 5 minutes at a time before being relieved. In cases of shock by electricity, which is paralysis of the nerves, the same method should be resorted to.

When you have applied artificial respiration, oxygen and bodily heat, you have done almost everything that should be done in either case of electric shock or gas asphyxiation. If a man is intoxicated his chances of recovery are not as good as liquor taken in excess acts as a depressant.

The best application for burns is a mixture of sweet oil and lime water, equal parts, well shaken. Cases have been known where individuals have recovered from electric shocks after 20 hours' artificial respiration. Don't fail to keep the individual well covered and where there are no draughts. Have plenty of good air and keep the body warm.

When the individual is unconscious don't let the tongue drop back. Do not leave a man alone until he has fully recovered his senses. If you are tired of doing artificial respiration, draw the tongue backward and forward 16 or 18 times a minute, which almost takes the place of artificial respiration. When the jaw is fixed, place a jacknife or a piece of wood well back between the teeth, forcing open the jaws.

I will show you how to do this thing if I can get a victim here. If that good looking young man will come here and lie on the table I will show you how to do it. [Mr. Learned proceeded to illustrate the method which he had described in his paper.] In regard to electric shocks the same method is pursued; but don't think for a moment that if a man is unconscious he is going to die. I am sorry to say we had a case in Watertown, due to the carelessness of a physician. He did not work on the fellow at all, and our foreman protested against it, and said that he had a shock. It was true, but the doctor got mad and did nothing. All of our foremen are instructed and know as much as I do as to the method to pursue. The reason why I took it up was that I had a case of asphyxiation on my hands, and it was a question whether I was going to kill the fellow myself or whether the gas would kill him, so I thought it best for me to post myself in order not to get into that predicament again. I think that is all, gentlemen.

Mr. White—I would like to ask a question. In the majority of cases, when overcome by gas, those men, instead of wearing suspenders have a belt tightly strapped around the waist. Do you consider it advisable to loosen that belt at once?

Mr. Learned—Yes, sir.

Mr. White—At the same time as loosening the collar?

Mr. Learned—Yes, sir.

Mr. White—Now, another question. The gentleman spoke about having a tank of oxygen and a wash bottle handy. How does he expect a man out on the street to have those appliances? Would you advise carrying a cylinder of oxygen around on the work?

Mr. Learned—Most assuredly we do; whenever we have a bad break we invariably do it, and we have saved one or two lives by it. We would not dare do otherwise.

Mr. Klumpp—It is the custom of our company to provide small hospital kits. There is a complete outfit, and very simple directions what to do in cases of burns, cuts, or abrasions of any kind, and also directions towards recovering persons from asphyxiation. I think with such a kit on each job, and having a foreman thoroughly conversant with its use, many lives can be saved. I would like to ask Mr. Learned if he has ever adopted the plan of breathing in a man's nose. Sometimes, if you are alone, take a mouthful of air—don't let it go into your lungs—and close the mouth of the patient or hold his tongue, and by blowing in his nose you can distend the lungs. And I noticed in Mr. Learned's working over the patient that he knelt at his head. Now, I have worked a half-hour over a man, but I straddled his body, so I could watch his face and bring his arms toward me, and then, instead of having somebody push his abdomen, would occasionally sit down on it and squeeze it with my own pressure. Then give the person a few drops of aromatic spirits of ammonia internally, to stimulate.

The President—Mr. Learned, how many cases have you had under your own observation?

Mr. Learned—We have had 3 gas and 3 electric cases.

The President—Did any of the six prove fatal?

Mr Learned—No. In the electric cases we had to work over a man for an hour and a half before we could bring him to.

The President—Was he burned?

Mr. Learned—Yes He said that the feeling was a sort of quiver when he took the shock. Then he was unconscious, and had pleasant dreams. After a while he came to. He thought that death by electricity would be mighty pleasant, from the feelings he had.

The President—You are inclined to believe him?

Mr. Learned—I am.

Mr. Price—May I ask if any action of the heart could be detected while you were working on the man?

Mr. Learned—No; you could hardly detect it. You would say the man was dead. I heard a statement made once that in all those cases of electrocution, if a person was taken and worked over right at once they all could recover.

The President—That statement has been made. This subject is very

important. The action taken by Mr. Learned is one that might well be followed by every company, whether large or small. The expense would be absolutely nothing compared with the saving of one life. It is not only proper and just, but it is humane. Many other things that now we count absolutely necessary could be gotten along without, if thereby such an outfit and such instruction could be provided for such emergencies. I hope other members here may be able now to add their testimony, prominent among them Mr. Prichard.

Mr. Prichard—I regard this as an extremely important matter, and would like to see this material placed within the reach of every person in this room, and as many more as we can get it into the hands of. I would suggest that Mr. Learned be invited to put this material in compact form, possibly just as it was read, with perhaps some remarks preceding it as to how a patient should be treated if he has not become unconscious, and that it be printed in some form, possibly on a cardboard placard that could be hung up, and at the expense of the Association say ½ a dozen copies of the placard be sent to each member. I am not particular about the details. I would like to see the work taken up in some way by the Association.

The President—That is a splendid suggestion. It is practical.

Mr. Stetson—I would say that in our own case I am entirely satisfied we lost a life and had to pay the bills (which were quite large) owing to the want of this knowledge, and the fact that the first thing done was to send for the city ambulance. The man while alive was put into the ambulance and carted to a hospital, and was dead when he got there. Now, keep that instrument away from your victim until you have had an opportunity to take care of him yourself. I knew nothing about this until the patient was landed. I think it is a very good idea to have just such an exhibition in your station, and with your gas men, and let each man have a try at it. It is a very simple matter. I had something to do with bringing one of our operatives to, and I practiced the method that was suggested by my friend White. I got astride the man, worked his arms and pumped him by pressing on them. I think the greatest trouble in this matter is taking care of the man's tongue. You must have help to do that, as I know. It is a vital point to see that he is not choked or obstructed by the dropping back of the tongue into the throat. But I think we should have been some thousand dollars better off if we had kept away the city appliances and been able to take care of the man that I spoke of ourselves. He died on the road to the hospital, and I am perfectly satisfied that earlier care and attention would have saved his life.

The President—Mr. Stetson calls attention to what is, in my opinion, a very important factor. It may be known theoretically, but the men who are in charge of men upon the work themselves should be instructed and able to do that part of the operation.

Mr. Learned—One objection to Mr. Prichard's suggestion is that you will find your different foremen don't seem to grasp the idea in the printed directions. I would suggest—say, for instance, in the case of Lynn—that Mr. Prichard might call in a first-class surgeon, get all his men together, pick a subject out and let the surgeon give the men a lecture, letting them ask questions. That will do more good than the printed directions. That is what we did. Then after that, at the next weekly meeting, why the fellows themselves would operate upon each other and see if they did it right or understood it. It seems to me that a practical illustration is far better than printed directions. It would be money well spent.

The President—Mr. Allen.

Mr. Allen—I wish to state that in our station we have the printed directions, and have also gone through the same illustration with our men that Mr. Learned gave. We have a cylinder of oxygen, and have also a respirator to put over a man's face, so that when he goes into a dangerous place he can work there freely without any danger whatever.

The President—We all would like to hear Mr. Allen's description.

Mr. Allen—The respirator we have is called the Loeb respirator, and consists of a metal valve box connected to a little piece of rubber that fits inside the mouth, underneath the lips, with a projection that the man bites on, so that he holds the mouthpiece in a proper and safe position. Then there is a little clamp that goes on his nose, so he cannot breathe through his nose. There is also a hose running from this to a plate which is strapped to his back with 50 feet of 1-inch hose running out into the pure air. When we first bought this we wanted to try it on a man and put one in our meter room, where we were just making a 16-inch connection. We closed the windows, and stood outside. It was understood by signals just what the man was to do. With this respirator on he stood deliberately over that 16-inch valve and opened the valve pretty near half-way. There were half a dozen of us or more standing outside, looking through the window at him. In a very few minutes the glass in the windows was discolored, so we were perfectly satisfied that the man was in a room entirely filled with gas, or containing a large percentage of it. I opened the door and looked in myself, and was satisfied that it was time for me to get out. On signal the man closed the valve. He was exposed to the atmosphere of that room about 5 minutes, I think. We opened the windows, ventilated the room, and took the respirator off the man, and he came out and felt no effects of gas whatever; did not even smell it, so he said. You know the old saying that an ounce of prevention is better than a pound of cure. Therefore, I think that a respirator is a very valuable thing for a man to have in case of trouble, and by the use of one you will avoid the possibility of a man being overcome with gas.

The President—The printed card certainly could do no harm. It might show an earnest upon the part of all companies to provide all safeguards. Surely the surgeon could be called in too.

Mr. Nettleton—I should like to second Mr. Prichard's motion. I believe in it thoroughly.

The President—It is moved and seconded that Mr. Learned be requested to prepare in proper detail the subject matter contained in his paper and arrange for it to be printed in proper form at the expense of this Association, and that a sufficient number of copies be distributed through the mail by the Secretary to every company represented. Are there any remarks upon that motion? [Adopted unanimously.]

More Questions.

"How can the house governor nuisance be controlled?"

Mr. Wood might answer that question.

The Secretary—I might say in this connection that I have frequently found governors put on to the outlet of meters which I believe to have been to put on illegally, the parties putting them on being subject to fine, in that they have disconnected the meter of a gas company without permission and not in the presence of a representative of the company, and also have been guilty of infraction of the piping laws of the City of Boston, doing gas piping without a license from the city. We get complaints of lack of pressure. The jobber goes and finds that the governor has been put on and set to carry one or two burners, and when they light up the ordinary number they cannot get gas enough. The thing to do is to put more weights on the governor, and of course that lets more gas through and it dosen't save half the bill, as the governor guarantees to do. Of course, there are governors and poorer governors.

There are these little fake governors that they put into the outlet of a meter, which merely throttle the supply. I think as a matter of fact many of the governors are a source of danger. I recollect one night being called out to a hotel which was filled with gas, and on investigation it was found that in the store under the hotel the glycerine governor had blown out. I and others had to hustle around and find a key, or means to get into that store and remedy the trouble. As this matter has come to my attention personally, I was interested to know if any of the other members had taken any steps towards heading off these bogus governor vendors?

The President—It certainly is a fruitful source of trouble and annoyance, I guess, in every locality. Another question is:

"If a meter stops registering, is any attempt made to collect an estimated bill; and if an attempt is made, what are the results?"

That is in the case of a dead meter, I suppose. Someone must have had an experience.

Mr. Polk—I will say I have known this to occur, and have usually estimated the bill, and with fair-minded people have had no difficulty in collecting it. Of course, some people would complain, but as a general rule, I think, they are perfectly willing to pay a fair bill. That is, take a bill for the corresponding month of the previous year and make it the minimum, I think you would have no trouble in collecting it.

Mr. Prichard—At the time of the Lynn fire we lost a number of meters that were absolutely destroyed. We took the number of days that they had burned from the time the meter was taken to the date of the fire, estimated the bill on the previous year, 16/30, or whatever it was of the previous year, and the bills were all paid without question.

The President—I think that is the universal custom, I know personally it has been resorted to in the companies under my supervision, and it is a fair way, especially if you will show the people from your ledger (that is our custom) just what the bill was for the corresponding month or quarter of the year previous.

Mr. Snow—While I agree that it is a fair proposition, there is a question in my mind I would like to have answered. Is it a bill that the company could collect? We have a measuring instrument in the cel-

lar to measure gas that the consumer is to pay bills by. If that goes wrong, isn't it up to the company to stand it? If the consumer is not fair-minded or has a mind to kick, is it a bill that the company can collect—an estimated bill?

Mr. White—We have had an experience in the line of electric meters entirely different from the condition given. Last August a severe thunder storm struck our town, and affected a great number of lines on our 3-wire electric system—that is, 220 to 110. When the meter readings began coming in, we found that bills that were formerly about $1 or $5 a month in some cases had jumped up to $35, $40 and even $50, and in other cases there were no readings whatsoever—that is, nominal readings. We investigated the matter and found that by a combination of grounds the excessive readings could be accounted for. We examined the houses, and found meters speeding round in some cases at the rate of 25 and 30 cents an hour. Inasmuch as we don't operate a circuit that will account for some of the bills in some of these cases we made rebates. We felt it was not just to the consumer to make that excessive charge. We based the amount charged upon the consumption of the preceding year. Upon those bills where the shunt coils of the meters were burned out we also followed the same line of procedure and made a similar charge. In only one or two exceptions, objection was made. The consumers, of course, who had the large bills were perfectly satisfied with the adjustment. Some of them were not satisfied with the adjustment on the small bills, but the matter was very easily settled.

The President—The question asked directly by Mr. Snow is a legal one. I am not clear in my mind whether there is any law governing it or not. Would Mr. Barker, the Chairman of the Gas Commission, inform us whether there is any law, direct or indirect.

Mr. Barker—Well, Mr. President, I presume that if a man uses any goods which he gets from a party whose business it is to sell them, he is bound to pay something for them if their value can be established. The value of the meter is that it makes out a *prima facie* case. The presumption is that what the meter states is true, and a man is bound to pay upon that statement; but that statement can be contradicted and controlled if the party from whom it is thought to collect the bill has the data to enable him to control it. So if a party uses goods of a vendor and the vendor can establish the fact of the value of those goods the party is bound to pay for them. I don't see any difficulty, as a matter of law, in establishing the liability of the person who has had the goods, whether it is gas or something else. There may be a difficulty about establishing the fact, but assuming the fact to be established, I don't see any difficulty in law about being able to collect. There is no question, in other words, about the liability of the party who has had the gas.

The President—I think it is the universal experience of everyone who has to deal with such cases that a large proportion of the people are fair-minded and will agree to pay, and do pay the average bill, as made. Are there any other members who wish to be heard upon this question? There is one other question that has since come to the notice of the Association, and too late to be printed on the programme. It is:

> "In a city built in blocks, with streets generally at right angles, which is the better way to lay out a meter reader's route: To follow the streets running north and south to their entire length, and then take the streets running east and west, or to divide the city up into irregular blocks, each one of which shall be about the size of a man's work for one day?"

That will have to be answered necessarily by those representing the larger places. Mr. McKay; what is the method, if you know, in Boston?

Mr. McKay—The work is done by districts or blocks, not by streets.

The President—Mr. Nute, what is the custom in Fall River?

Mr. Nute—I don't know that I am sufficiently familiar with that detail to be able to say. I should suppose, however, as all of the customers on any street are arranged in our consumers' ledgers in the order of their street numbers, and as the route books necessarily follow the ledgers in their arrangement, that naturally the meter readers would be obliged to read any street from one end to the other. From this it would follow that the parallel streets would be read first and then those at right angles, and this I believe is our practice.

The President—I should think it would be dependent somewhat upon the method adopted and followed by the company for their office records. Mr. Allyn, have you any testimony to give? Can Col. Benson give us any information in that department as to Brooklyn, N. Y.?

Col. Benson—Mr. President, I think our custom is, although it does not come under my jurisdiction at all, to follow the streets out rather than to take them in blocks.

The Secretary—I might have added that the question of the use of cards as against the use of route books, my man's view was that if a man going along the street was going to dodge down the side streets and take half way to the next parallel streets with cards he would get it all mixed up, but with route books he could do it. Of course, where you are going to travel the whole length of both the longitudinal and cross streets you do a good deal of duplicating the ground in travel.

A Hint from the President.

The President—It does seem somewhat relevant that the committee appointed last year to consider the matter of electrolysis might be asked to continue during the next 12 months, and requested during the interim to obtain such information as may be possible, to present to the meeting one year hence a report. I think the matter may be in different shape within the next year as to a decision rendered upon the liability of the street railway companies. In any event, I think there is no dispute upon its prime importance to our business. The committee will be requested, through its Chairman, to make some report at the meeting to be held next year. Touching upon this subect, the members at their leisure after the meeting if they desire can see the matrix papers that were taken off from the one length of pipe running between North Adams and Adams to which I reffered yesterday. There are 16 in the 22 feet of its length, and they vary in size and depth as shown by the papers. Some are exceedingly suggestive. For the information of all the members, and more particularly for the instruction of the committee itself, I might say that the committee consists of Messrs. C. F. Prichard, C. H. Nettleton and H. A. Allyn, and from those gentlemen we would very much appreciate, and perhaps expect, a report of some kind next year.

Mr. Prichard—I can only say that the process of "artificial respiration" has been applied to the committee, and we will endeavor to make a report another year.

The President—There is but one other matter of routine business left now, and that is the

Report of Committee on President's Aldress.

Mr. Prichard—Mr. President, Mr. Wood, the Chairman of the Committee is not here, and he asked me to read this for him:

The suggestions offered to the Association by your President are so clearly and convincingly stated, and his affirmations seem to be so in accord with the views of at least a large majority of the members, that your committee agrees that consideration of his recommendations in detail is unnecessary and that as a whole the address should receive the hearty endorsement and approval of the Association.

Respectfully submitted, W. A. Wood, Chas. F. Prichard, W. F. Norton. } Committee.

Vice-President Africa in the Chair—Gentlemen, you have heard the report of the committee? What action will you take on it?

On motion of the Secretary the report was accepted and placed on file.

The President resumed the Chair and said: Is there any question to be asked, or is there any information desired upon any particular point by any single member from the Directors? The Secretary reminds me that one question has been overlooked, and it is a fact. It is this:

> "How are the mechanical devices for handling coal, hot coke, oxide, ashes, etc., working?"

Now, if someone will answer that. No reference is made to last night, but just the ordinary, common daily apparatus. Let someone tell about the ashes, another about hot coke and another about hot air. It is a practical question, and important to many, unknown to some of us who run smaller works, I mean.

Mr. Coggeshall—I would say in relation to conveying the coal that for some years ours has been wheeled into the shed at quite a large expense on account of no service by trestle for unloading, etc. We bought some land about 4 or 5 years ago with the idea of putting a trestle in for that purpose. Owing to the difficulties of getting the railroad to do anything like putting in a switch, making any connection with us, we were unable to do anything for 3 years. Last year I wrote to the President of the New York and New Haven Railroad, who took the matter up, and in a very short time he had a switch put in. We are unloading coal at a cost of 5 cents a ton that formerly cost us—an average for the year—15 cents a ton. That is, our gas coal. On our steam coal we save about the same amount.

The President—We will be very glad to hear from Mr. Barnum.

Mr. Barnum—We have installed what is called the Telpher system for handling coke. It has now been working a little over 2 years. Both winters have been quite severe, the last one, for instance. It has worked 7 days in the week, night and day, without any breakdowns; just the ordinary repairs of any motors that are running continuously. The system has given excellent service and the amount of material handled is large. It is very adaptable to taking care of all the coke from the retort house and distribute it wherever we wish to use it. It also takes care of all the ashes about the works. Further, it takes all the screenings to the boiler house. Having the coke well up in the air enables us to do what we wish with it.

The President—Mr. Klumpp, have you some practical points in your mind that you can give in this direction, as to the experience of the United Gas Improvement Company?

Mr. Klumpp—I cannot say anything particularly, except that in the large works we have installed different types of conveyors. Some of the installations consist of cars taking the coke hot, the coke being quenched in the cars and carried by cable and dumped on to the screens, which worked satisfactorily. We have installed a system at one of our small works which takes coal directly from the cars in the conveyor, raising it and dumping it into a car that travels along on rails, goes down an incline and is dumped by a tripper into the bin. In going down it raises a counterweight, and when the car is emptied the counterweight pulls it back. One man can unload a 50-ton car of coal in about 1 to 1½ hours. It works very satisfactorily. That small works is putting out about 200,000 feet a day, and the system has paid for itself. I cannot say anything more in this particular.

The President—You refer to the conveyor taking the hot coke. Can you say from your experience how much water is necessary to quench a net ton of coke?

Mr. Klumpp—I cannot. I have no figures.

Mr. Coggeshall—My superintendent says I gave the results of the financial part of it, without giving any of the details. We erected an elevator hoisting apparatus, and elevate about 1,000 pounds per bucket. It is done perhaps in 2 minutes. It goes into a hopper at the upper end, and conveys by an incline somewhat as he has described, goes down of itself and comes back empty. It works vesy satisfactorily indeed. It is the C. W. Hunt conveyor.

The President—What did it cost?

Mr. Coggeshall—The cost for hopper to receive the car of coal from the trestle, the building for the hoisting apparatus, automatic railway through the coal shed 100 feet long, pockets and all the paraphernalia to make it complete, including motor to run it, cost $3,350.

Mr. Pease—For handling the coal from the cars we have a Hunt conveyor. It dumps into the coal shed, or into a Robbins' belt that carries it over to the retort house. Both are working nicely. We have no trouble with them at all.

Adjournment.

The President—Gentlemen, this will close the meeting, and I wish personally to express my keen appreciation of your continued attendance upon the sessions. It seems to me it has been quite remarkable, the number of people that have stayed during them all. Surely the papers have been interesting and instructive, and the discussion has been very general. To you all I wish to express my thanks. Whilst you are waiting the next 12 months for the meeting to come again, remember, if you know of any available man in New England who is not a member, to ask him to come; to tell him why he should come, and why he will be welcome.

The following members answered to the

ROLL CALL.

Honorary.

Benson, F. S. Sherman, F. C.

Active.

Africa, W. G.	Crafts, H. C.	Lamson, C. D.
Alden, G. A.	Dustin, G. K.	Learned, W. A.
Allen, B. J.	Elles, J. W.	Leonard, C. F.
Allyn, H. A.	Erhard, T.	Lennon, J. E.
Anderson, W.	Frost, C. T.	Mace, F. W.
Barnum, D. D.	Gifford, C. H.	Manchester, G. L.
Bill, B. P.	Gifford, N. W.	Mansfield, G. W.
Brockingham, F. T.	Gould, J. A.	McKay, W. E.
Burritt, D. T.	Goulding, N. O.	McKnight, G.
Butterworth, C. W.	Havener, F. N.	McQueston, W.
Cathels, E.	Harbison, J. P.	Morrison, H. K.
Campbell, A. J.	Hintze, T. H.	Nettleton, C. H.
Church, F. C.	Jenks, Z. M.	Norton, H. A.
Cheney, H. N.	Jennings, F. W.	Norton, W. F.
Coffin, J. A.	Johns, L. B.	Norton, P. T.
Coggeshall, H. F.	Kelly, H. H.	Nute, J. E.
Nutting, C. H.	Sargent, F. S.	Stone, A. F.
Prichard, C. F.	Slade, R. E.	Thayer, W. F.
Philbrick, J. E.	Slater, A. B.	Thayer, F. S.
Polk, R. W.	Snow, W. H.	Todd, J. R.
Pease, A. C.	Spaulding, C. F.	Walker, W.
Priest, G. H.	Spaulding, C. S.	White, C. E.
Quinn, A. K.	Spear, J. A. Q.	Wood, W. A.
Richardson, F. S.	Spear, J. N.	Woodward, R.
Rossman, G. M.	Sharp, R. P.	Wyant, R. E.

Associate.

Barnes, A. M.	Davidson, R. A.	McKenny, N. A.
Baldwin, G. H.	Davis, F. J.	Osborne, R. M.
Brown, H. T.	Dickel, W. L.	Piser, T. H.
Burr, A. R.	Higgins, A. A.	Potter, T. J.
Beardsley, A. P.	Hinman, C. W.	Scranton, G. H.
Cheney, C. H.	Huestis, F. C.	Thomas, F. W.
Chisholm, C. T.	Humphreys, F. W.	White, H. E.
Cohen, C. M.	Livoux, J. E.	
Costi, D. T.	Mack, C. A.	

[Report of Proceedings.]

TWENTY-FIRST ANNUAL MEETING, OHIO GAS LIGHT ASSOCIATION.

Held at Pittsburgh, Pa., March 15, 16 and 17, 1905.

First Day—Morning Session.

The 21st annual meeting of the Ohio Gas Light Association convened at the Hotel Schenley, Pittsburgh, Pa., at 9:30 o'clock A.M., March 15, 1905, with Mr. Frederick W. Stone, of Ashtabula, O., as President, and Mr. Thomas Clive Jones, of Delaware, O., as Secretary. Upon roll call, the following members reported their attendance:

ROLL CALL.

Atwater, C. G.	Dodson, H. K.	Lindsay, C. R., Jr.
Abell, H. C.	Drouilliard, G. L.	Lord, R. S.
Allen, W. H.	Doty, P.	Low, D. W.
Andrews, C. W.	Dutton, C. R.	Lloyd, A. G.
Armstrong, F. S.	Eaton, A. B.	Lloyd, E. F.
Barnes, W. J.	Esau, R.	Lush, J.
Barnes, G. W.	Elles, E. J.	Lupher, P. W.
Baxter, I. C.	Elliott, H. J.	Lynn, J. T.
Bredel, F.	Falkenstein, G.	Lynn, J. R.
Bender, W. E.	Faben, C. R., Jr.	McDonald, W.
Bigelow, L. S.	Franklin, J.	McDonald, D.
Briggs, G. W.	Frost, W. H.	McDonald, D.
Bill, B. P.	Forbes, C.	McIlhenny, F. S.
Blinks, W. M.	Fries, J. W.	McIlhenny, J. D.
Booth, G. P.	Fox, C. J.	McIlhenny, J. S.
Brown, D. F.	Foster, M. H.	McKee, G. W.
Brown, E. C.	Fulton, L. B.	McKee, H. L.
Bump, M. R.	Frueauff, F. W.	McKnight, J. J.
Bulmalm, E. F.	Gassett, A. L.	Mann, H. E.
Bullock, B. F.	Green, J. L.	Marchand, B. F.
Butterworth, I.	Gefrorer, W. W.	Magee, R. S.
Bryson, R. A.	Guenther, E. B.	Martin, S. S.
Clapp, G. N.	Guldlin, O. N.	Malone, M. E.
Clark, G. M.	Hartpence, C. C.	Martin, N. M.
Chamberlain, G. R.	Hamlink, L. C.	Mason, J. T.
Carpenter, H. A.	Hammon, W. H.	Mancourt, E. M.
Calkins, W. B.	Harrop, Dr. H. B.	Mansur, J. H.
Cartwright, H. R.	Hartzell, A. C.	Merkt, G. A.
Crawford, A. A.	Hayward, T. J.	Merrill, E. C.
Crawford, E. W.	Henderson, E. H.	Mennie, R. S.
Cressler, A. M.	Heiman, C.	Miller, C. F.
Cressler, A. D.	Hicks, G. C., Jr.	Miller, F. A.
Cressler, G. H.	Hofman, G. M.	Miller, W. A.
Clifford, T. C.	Hoffman, R. J.	Moran, H. P.
Cobb, B. C.	Hoffman, J. G.	Morrison, W.
Cross, P.	Holmes, A. G.	Moon, O. P.
Coate, P. S.	Hoyt, H. B.	Moore, E. M.
Collins, D. J.	Humphreys, E. C.	Morey, C. T.
Collins, W.	Humphreys, H. M.	Moses, F. D.
Cook, W. J.	Humphreys, H. S.	Morris, D.
Coombs, F. S.	Humphrey, A. H.	Morris, R. C.
Congdon, R. C.	Hurtz, L. E.	Morris, W. C.
Corbus, F. G.	Innes, J. A.	Mueller, P.
Cruse, A. R.	Janney, R. M.	Mullen, J. J.
Curtis, S. P.	Johnson, E. D.	Neemes, W. C.
Davis, J. W.	Keenan, J. E.	Neeley, J. D. S.
Daly, M. B.	Kennedy, R. P.	Norris, R.
Dean, M.	Klumpp, J. B.	Norris, R. M.
Dell, J.	Knight, J. J.	Olds, H. L.
Dexter, M.	Knight, W. H.	Owens, H. G.
Dewey, V. F.	Koiner, C. W.	Osbourne, E. M.
Dickerson, J. N.	Krick, K. C.	Pattrell, C. B.
Dickey, E. S.	Lakamp, W. S.	Palmer, L. T.
Doherty, H. L.	Lea, H. I.	Payne, F. H.
Dole, H. N. P.	Leakey, N. G.	Persons, F. R.
Dolph, A. M.	Leamy, A.	Perkins, B. W.

Petura, F. J.	Schall, H. D.	Schumacher, G.
Pew, J. G.	Schwarm, C. A.	Tracey, W. B.
Perry, A. T.	Slater, A. B.	Terhune, C. F.
Powell, W. R.	Stacey, A. J.	Tobey, J. F.
Price, W. W.	Shattuck, J. D.	Town, H. L.
Printz, C. H.	Steward, R. B.	VanBlarcom, H.
Printz, E.	Steward, S. B.	Walker, W. W.
Richardson, W. W.	Stevens, J. C.	Walker, W. L.
Reinecke, J. P.	Steenbergen, C. L.	Warmington, D. R.
Robb, J. M.	Sheriff, T. E.	Weber, E. S.
Ross, W. H.	Stebbins, E. S.	Wheeler, F. B.
Roberts, E. R.	Steinwedell, W. E.	Wickham, L.
Roper, G. D.	Smith, A. M.	White, C. H.
Rontons, J.	Stritmatter, A. S.	Witherby, E. C.
Rutter, T. V.	Schnierle, E. H.	Williams, C. H.
Ruke, C.	Spiegel, W.	Witherden, G. M.
Russell, D. R.	Stringham, J. H.	Woolen, A. L.
Sapp, D. E.	Stone, F. W.	Whysall, G.
Shaw, E. C.	Stone, H. E.	Young, P.
Shacklette, R.	Stillson, H. G.	Young, R. W. H.
Sayer, E. Y.	Storer, H. D.	

ADDRESS OF WELCOME.

The President—We have the honor to have with us Mr. John A. Blair, who will represent the Mayor of the city of Pittsburgh, in extending to us a welcome. Mr. Blair spoke as follows:

Mr. President and Members of the Ohio Gas Light Association: Being one of the assistant solicitors of the city of Pittsburgh, I was requested day before yesterday to come here to-day, representing as I do, Hon. William B. Hays, the Mayor of this city, and to extend to your Association a most cordial welcome. It gives me great pleasure to extend to you a hearty greeting and to express the hope that you will each and all enjoy yourselves while here, and will receive much profit and benefit, not only from the meetings from day to day of your Association, but also from what you may see and learn concerning our city during your brief stay with us. I was unable before I came here to learn anything definitely concerning your organization, its object and purposes. I find, however, from the pamphlets which have been distributed here this morning some idea of the kind of Association you have formed and can well infer many of its objects and purposes. In this busy age of combination, consolidation and concentration of capital and labor, it is absolutely necessary for every individual of large affairs, or who has money invested in enterprises like yours and engaged in a business like yours, to get together, from time to time, compare notes and exchange experiences. It results in good, not only to you and to the industries you represent, but also results in good to the gas consumer. For the cheaper you can produce everything you make the cheaper you can sell it to the consumer.

I was rather surprised, though, to find that in this part of the State of Pennsylvania, and especially in the city of Pittsburgh, where we have such a large production and consumption of gas, and particularly natural gas, that though your Association is an old one, this being its Twenty-first Annual Meeting, you did not have more members from this section of the State of Pennsylvania and from the city of Pittsburgh. I see, by reference to a pamphlet I hold in my hand, that you have only 9 members from this city, although, of course, you have many more members from the State of Pennsylvania.

I congratulate you, gentlemen, on the fact that your Association is growing and is in a progressive state of activity, as evidenced by the number in attendance and by the various sections of the country represented by those in attendance. I see from another paper which has been distributed among the members this morning, that you have several hundred people waiting ready to come into your organization, and in looking over the list of applicants I find that they are from all parts of the United States, from Oklahoma, from Alabama, from Florida, from Wisconsin, and in fact from most of the States of our Union. It is an elegant thing to have an organization national in its scope like this. It brings you in touch with the whole field of operation much better than you could otherwise be placed in touch with the varied departments connected with your important industry. The ideas which will be disseminated here by your speakers, from different parts of the country, will no doubt be carried to all parts of the United States, and will there be used as a means for the better understanding of your work and a better prosecution of your business and for the obtaining of better results and greater benefits to your patrons, the consumers.

Pittsburgh is an ancient city in one respect. You have all studied American history and you know something about it. I just want to mention one fact. In the early days, before the formation of the union, the French had formed quite a colony in Canada, and LaSalle and Frontenac had explored the Ohio and Allegheny rivers and the Mississippi. His idea at that time was to take possession of all this country, building a line of forts from Montreal down the Allegheny, down the Ohio and down the Mississippi to New Orleans. Pittsburgh was one of the places where he built a fort, and that fort was Fort DuQuesne. Old Fort DuQuesne is the place where Washington came to this part of the country in order to make terms with the French, and it was in this city, or just at the outskirts of this city, in Braddock's Field, out here about 6 or 8 miles, where a great battle was fought in those olden times at Fort Necessity, and where Washington was defeated in his first battle, and which point he afterwards evacuated.

We have a great many other important points of interest in Pittsburgh. Pittsburgh was chartered as a city in 1816, and it has had many charters since. We expect to have a new law giving us the right to consolidate Allegheny with Pittsburgh and to have a Greater Pittsburgh. This city itself should have, instead of 350,000 inhabitants, over 500,000 inhabitants, if we had what practically forms the city of Pittsburgh to-day. We have here near the hotel where you are now gathered one of the grandest monuments of the philanthropy of the great man who has done more for this country and for the city of Pittsburgh than any other man in it probably. I refer to the Carnegie Institute. Near the site of the Carnegie Institute we have in immediate prospect another institute—a larger one—and that will surpass almost anything in the world in construction and in the good it will do. Across the ravine you will notice the site of the Polytechnic School, which is also the result of the bounty of Andrew Carnegie. I wish to call your attention also to the fact that this is a wonderful city so far as it concerns the industry which you represent. There is probably more of your material consumed here—your gas consumed here—than in almost any other city in the United States, if not in the world. Go to the plant of Jones & Laughlin, on the Monongahela river, follow it up a little piece and you will find that river is simply crowded with smoke stacks. Go on up to Homestead or to McKeesport and you will find that these cities are great centers for manufactories and that they use gas almost exclusively. You can see the same thing along the Allegheny river. That river is dotted and crowded with smoke stacks and great manufactories almost for 40 miles up the river. Then we have manufactories all over the city, not only along the rivers but away from rivers in other places. I do not doubt at all but that you will visit a great many of these places. You have a very competent local board of entertainers. I know some of them very well. I know that they will not only show you what pertains to your business, but they will take you out through the east end, through our beautiful Schenley Park and Highland Park, and will show you where the wealthy Pittsburghers, or some of them at least, live. We do not all live in those big houses out there, but some of our millionaires do. In concluding, let me welcome you again most heartily to the city of Pittsburgh, and to express the hope and the belief that you will spend a pleasant time here. I thank you. (Applause.)

RESPONSE BY MR. JOHN D. MCILHENNY.

President Stone then introduced Mr. John D. McIlhenny, who thus responded in behalf of the Association to the address of welcome:

Mr. President, Mr. Blair, representing the city of Pittsburgh, and members of the Ohio Gas Light Association: We are certainly indebted to Mr. Blair, representing as he does this great city, for giving us its freedom during our meeting time here, bidding us a cordial welcome and making us feel at home. We appreciate his coming here—a busy man as he is—to extend to us these friendly greetings and to welcome us so cordially to the city of Pittsburgh.

It is well known that Pittsburgh is a very great city; that it is a hive of industry in the United States. We come to-day, as Mr. Blair has said, knowing something about Pittsburgh. For DuQuesne was a very vital and important factor in the early development of this country and presented a graphic and critical situation in the early history of the country, the importance of which was very far reaching. Had not Fort DuQuesne been taken at the time it was, France would have owned the country west of the State of Pennsylvania, and possibly the United States may have never acquired it or, if it had acquired it, it would have been under great difficulties. Pittsburgh is noted for a good many things. It is noted for the fact that the tonnage of Pittsburgh exceeds that of the city of Liverpool, which is a remarkable illustration of its importance as a business center. That is accounted for by the tremendous shipments of coal down the river. Pittsburgh is also noted I may say, especially noted in the popular mind to-day, for two other things; for its millionaires and its pickles. (Laughter.) When I say Pittsburgh is noted for millionaires, we all know that to be the case and I think it is but proper to say they all deserve having acquired their wealth. The business men of Pittsburgh

have been and are to-day well known for their integrity and square dealing. They made their money in a primary way, so-to-speak; that is, they made it in handling the raw products of the earth. They handle the coal, the oil, the natural gas which issues from the earth. They handle ore and from the ore they make iron, steel and the other basic products that are used throughout the world, and if there is any better way of acquiring money than another, it seems to me that more respect attaches to making it in the handling of the fundamental and basic products of the world, which provide the necessary commodities for communities, rather than by making their money on the community, as is the case of the bulk of the great fortunes made throughout the rest of the country. Mr. Blair called attention to the fact that we have a large number of applications for membership. I would say in this connection that such is accounted for by the fact that the Ohio Gas Light Association is doing every thing within its power to contribute to the welfare of the gas industry and to help all of those who are connected with it. That is the aim of this Association, "Help for all" whether they are members of the Association or not. The result is we have "Cast our bread upon the waters," and it is returning to us. We are now having the help of people from all over the United States, and even outside of the United Statas, who are contributing to the good work being prosecuted so vigorously and so successfully by this Association in trying to educate all gas men up to a high standard of efficiency. I would also say—and particularly to Mr. Blair—that gas associations are unique in many respects, and are far different from the average conception of similar associations in other industries. That is brought about by the fact that we have nothing to conceal. Our meetings are all open. The public is cordially invited and the proceedings of this Association are free to the public. If there is any body of men in the world who have nothing to conceal, it is the gas men and the gas companies. There is no gas company in the United States which will not willingly invite its customers and consumers to examine the method of testing gas meters, to examine the records of gas meters, or in any other way to show and demonstrate to the consumer the exact manner of conducting the gas business. There is no other business I say in the world where a more conscientious effort is made to give the purchaser the full value for every dollar which he pays for the commodity we handle. (Applause.) The history of gas companies universally proves the fact that a gas consumer receives full value for the commodity which he purchases of the gas company, and the gas company is anxious to see to it that the consumer shall receive the full value. This is true of our business more so than any other line of business with which I am familiar.

I again thank Mr. Blair for his cordial invitation extended to the Ohio Gas Light Association to meet in the city of Pittsburgh. (Renewed applause).

On motion of Mr. Doty (seconded by Mr. Butterworth) the reading of the minutes of the last meeting was dispensed with.

REPORT OF THE EXECUTIVE COMMITTEE:

was then read by Secretary Jones as follow:

To the Members of the Ohio Gas Light Association: Gentlemen—Your Executive Committee begs leave to submit for your consideration the following recommendations and report:

1. That Messrs. Fred R. Persons, F. W. Frueauff and John D. Shattuck be appointed a Nominating Committee.

2. That Messrs. Paul Doty, Eugene Printz and Irvin Butterworth be appointed a Committee on Memorials.

3. That Messrs. F. W. Frueauff, J. J. Knight and S. P. Curtis be appointed a Committee on Next Place of Meeting.

4. That Messrs. H. B. Harrop, James T. Lynn and Geo. H. Tayler be appointed a Committee on Final Resolutions.

5. That Messrs. John McMillan, W. A. Arthur, F. B. Many, Edwin Yawger, W. R. Addicks, H. C. Franklin, Philip S. Dickey, E. S. Weber, Hugh McK. Landon and H. S. Brooks be released from membership at their own request.

6. That Messrs. H. H. Osborn, Joseph Simson, B. P. Foster and Miller Booth be dropped from membership for non-payment of dues.

7. That the following be elected to active membership:

NEW MEMBERS.

Atwater, C. G., New York City.
Allen, W. H., Newark, N. J.
Aiken, H. L., Chester, Pa.
Aldrich, F. B., Pottsville, Pa.
Allyn, G. E., Providence, R. I.
Ambler, T. M., St. Louis, Mo.
Armistead, D., Pittsburgh, Pa.
Avery, J. S., Nyack, N. Y.
Baer, H. S., Hancock, Mich.
Baker, C. F., Boston, Mass.
Barnes, W. J., Stamford, Conn.
Barrows, G. S., Philadelphia, Pa.
Bartlett, E. L., Baltimore, Md.
Beal, W. R., New York City.
Behringer, E. A., New York City.
Bement, A., Chicago, Ills.
Bertrand, P. A., Springfield, Mo.
Best, F. W., Utica, N. Y.
Briggs, G. W., Westerly, R. I.
Bivens, R. W., Denver, Col.
Blase, E. G, Vincennes, Ind.
Blossom, F., New York City.
Bodine, S. T., Philadelphia, Pa.
Booth, G. P., Bradford, Pa.
Bowen, J. R., Pottsville, Pa.
Bower, J. A., Chicago, Ills.
Brewer, F. C., Tacoma, Wash.
Briggs, C. R., Cuba, N. Y.
Brown, D. F., Albany, N. Y.
Buck, H. M., Waukesha, Wis.
Bullock, B F., Norfolk, Va.
Bump, M. R., Denver, Col.
Bulmalm, E. F., Wilkensburg, Pa.
Bryson, R. A., Wash. C. H., O.
Cagney, J. J., Montreal, Quebec.
Cahoon, J. B., New York City.
Calkins, W. B., Fairmount, W. Va.
Cantril, A. N., Grand Rapids, Mich.
Capron, H. S., Princeton Ills.
Case, L. N., Duluth, Minn.
Case, J. W., Slayton, Minn.
Chamberlain, G. R., Grand Rapids, Mich.
Cheney, C. H., S. Manchester, Conn.
Child, R. S., Cheboygan, Mich.
Chisholm, C. T., Chicago, Ills.
Clark, W. J., New York City.
Cline, W. B., Los Angeles, Cal.
Conlin, J. J., Savannah, Ga.
Coates, P. S., Chatham, Ont., Can.
Coydan, W. B., Atlanta, Ga.
Cook, W. J., Scio, O.
Cortis, D. T., Boston, Mass.
Cox, W., Madison, Wis.
Cox, J. M., Muscatine, Ia.
Crawford, R., Stamford, Conn.
Crawford, A. A., Conneaut, O.
Crawford, E. W., Pittsburgh, Pa.
Crilly, R., Elizabethtown, N. J.
Crohan, B. J., Detro t, Mich.
Cruse, A. R., Philadelphia, Pa.
Crowley, J. P., St. Paul, Minn.
Cunningham, J. R., Cleveland, O.
Cushman, G. H., San Antonio, Tex.
Culcheon, M. H., Appleton, Wis.
Clifford, T. C., Pittsburgh, Pa.
Davis, J. W., Delaware, O.
Dawes, J. H., Philadelphia, Pa.
Dean, M., New York City.
Degener, P. A., Milwaukee, Wis.
Denison, H., Ridgewood, N. J.
Dexter, MacD., Columbus, Ga.
Dice, J. W., Lake Forest, Ills.
Docteur, L. A., Montgomery, Ala.
Dodson, H. K., Baltimore, Md.
Dow, A., Detroit, Mich.
Drane, F. G., San Antonio, Tex.
Dunn, F. S., Albany, N. Y.
Durbrow, W., Orville, Cal.
Dutton, C. R., Wyncote, Pa.
Earnshaw, B., Philadelphia, Pa.
Earnshaw, E. H., Cincinnati, O.
Edler, H. L., Millville, N. J.
Elbert, V. L., St. Paul, Minn.
Elliott, H. J., Chicago, Ills.
Esau, R., Allegheny, Pa.
Emery, J. A., Birmingham, Ala.
Engelberger, B.F., Milwaukee, Wis.
Falkenstein, G., Cooperstown, N.Y.
Fries, J. W., Pittsburgh, Pa.
Fox, C. J., Darby, Pa.
Foster, M. H., Cleveland, O.
Ferris, P. M., Vancouver, B.C.
Flinn, C. F., Chicago, Ills.
Fogg, O. H., Flushing, N. Y.
Forbes, C., London, Ont.
Ford, A. H., New York City.
Fox, J. M., Peekskill, N. Y.
Freshney, S. A., Muskegon, Mich.
Fulton, L. B., Pittsburgh, Pa.
Gaitley, J. E., Albany, N. Y.
Galt, H. A., Barberton, O.
Gamwell, R. H., Greensboro, N.C.
Gardiner, W. H., Jr., Boston, Mass.
Gartland, E. P., Denver, Col.
Green, J. L., Pittsburgh, Pa.
Gefrorer, W. W., New York City.
Gavit, E. P., Albany, N. Y.
Gelatt, P. M., La Crosse, Wis.
Gentry, R., Denver, Col.
Gille, H. J., St. Paul, Minn.
Gleason, P. D., Denver, Col.
Goodman, P. J., New York City.
Goodwin, J., Bakersfield, Cal.
Gorton, J. C., Schenectady, N. Y.
Gould, T. A., Xenia, O.
Gray, J. L., Bayonne, N. J.
Greenert, J. A., Delaware, O.
Greim, O. F., Milwaukee, Wis.
Griswold, R. G., Denver, Col.
Guenther, E. B., Pittsburgh, Pa.
Hartpence, C. C., New York City.
Hofman, G. M., Fort Wayne, Ind.
Hammond, J. C., Denver, Col.
Hantzmon, H. M., Alexandria, Va.
Hargrove, R. W., Ann Arbor, Mich.
Harrington, N. T., Detroit, Mich.
Hartzell, A. C., Greenville, Pa.
Hay, A. E., Oberlin, O.
Hayward, T. J., Baltimore, Md.
Heard, A., Hagerstown, Md.
Heiman, C., Coshocton, O.
Hellen, F., Grand Rapids, Mich.
Henderson, V. A., Denver, Col.
Herstine, D. C., Camden, N. J.
Higgins, H. C., Dixon, Ills.
Hoffman, J. G., Detroit, Mich.
Hogle, M. W., E. Pittsburgh, Pa.
Holden, T. F., Washington, D. C.
Hoyt, H. B., Michigan City, Ind.
House, E., Long Branch, N. J.
Huddle, W. J., E. Pittsburgh, Pa.
Humphreys, H.M., Milwaukee, Wis.
Hurtz, L. E., Lincoln, Neb.
Huestis, F. C., Cambridge, Mass.
Hutchinson, W. E., Hutchinson, Kan.
Hyde, W. F., Milwaukee, Wis.
Hyman, M. A., Albuquerque, N.M.
Innes, J. A., Eagle Grove, Ia.
Iliff, W. S., Denver, Col.
Janney, R. M., Philadelphia, Pa.
Jackson, W. B., Madison, Wis.
Jones, A. T., New York City.
Jones, W. S., Utica, N. Y.
Keenan, J. E., Philadelphia, Pa.
Kennedy, R. P., Pittsburgh, Pa.
Keller, E. E., E. Pittsburgh, Pa.
Kimball, R. N., Kenosha, Wis.
Kirk, G. W., Shelbyville, Ind.
Kivlen, J. F., Utica, N. Y.
Klumpp, J. B., Philadelphia, Pa.
Knothe, W. J., Denver, Col.
Krick, K. C., Columbus, O.
Lakamp, W. S., Cincinnati, O.
Lillie, J., Port Townsend, Wash.
Lauber, A., New York City.
Layton, M. B., Pittsburgh, Pa.
Leamy, A., Pittsburgh, Pa.
Leonard, C. F., Fall River, Mass.
Lindsay, R., New Bedford, Mass.
Linton, R. I., Ravenna, O.
Litle, T.J., Jr., Gloucester City, N.J.
Lloyd, A. G., Detroit, Mich.
Loichot, J., Canton, O.
Loomis, B., Hartford, Conn.
Lupher, P. W., Columbus, O.
Lush, J., New York City.
Luther, W. J., Attleboro, Mass.
Macbeth, G. T., Yonkers, N. Y.
Mainland, S., Green Bay, Wis.
Markley, J. C., Chicago, Ills.
Marchand, B. F., Wilkinsburg, Pa.
Merrill, E. C., Pittsburgh, Pa.
Merkt, G. A., Pittsburgh, Pa.
Mennie, R. S., Wilkinsburgh, Pa.
Moran, H. P., Fort Wayne, Ind.
Morey, C. T., Cambridge, Mass.
Morrison, W., Columbus, O.
Morris, W. C., Ashland, Wis.
Martin, N. M., Wilkinsburg, Pa.
Martin, S., Sparrows' Point, Md.
Mason, S., Philadelphia, Pa.
Mason, J. O., Aurora, Ills.
Mead, G. W., Chicago, Ills.
Merritt, W. H., Lebanon, Pa.
Mershon, R. D, New York City.
Miller, C. F., Wilkinsburg, Pa.
Miller, A. V., Kansas City, Mo.
Miller, E. E., Cincinnati, O.
Miller, F. A., Bradford, Pa.
Mockett, W. E., Dallas, Tex.
Moore, N., Kansas City, Kas.
Moore, E. M., Pittsburgh, Pa.

Moorhouse, L. B., San Antonio, Tex.
Morris, R. C., Jr., Binghamton, N. Y.
Morris, W. T., Ithaca, N. Y.
Mueller, P., Erie, Pa.
Murdock, G. T., Elkhart, Ind.
Myers, H. N., Modesto, Cal.
McCallum, J. A., Long Branch, Cal.
McCorkindale, W. J., Sherman, Tex.
McCormick, J. H., Decatur, Ills.
McDonald, W. B., Evansville, Ind.
McGilligan, J. R., Madison, Wis.
McGoldrick, Cleburne, Tex.
McGregor, W., Pawtucket, R. I.
McIlhenny, J. S., Wash., D. C.
McKee, G. W., Detroit, Mich.
McKee, H. L., Wilkinsburg, Pa.
McKnight, J. J., Pottsville, Pa.
Norris, R., Philadelphia, Pa.
Norris, R. M., Philadelphia, Pa.
Neemes, W. C., McKeesport, Pa.
Nicolas, J, Denver, Col.
Nostrand, B. B., Jr., Peekskill, N. Y.
Nute, J. E., Fall River, Mass.
Olmstead, G. G., Chicago, Ill.
Parker, F. H., Burlington, Vt.
Parker, J. R., Hancock, Mich.
Parkinson, B. C., Kewanee, Ills.
Potter, H. H., Madison, Wis.
Potter, C. F., Flushing, N. Y.
Prior, L. W., Cleveland, O.
Petura, F. J., Lincoln, Neb.
Reed, F. J., Westfield, Pa.
Reid, G. E., Binghamton, N. Y.
Reinecke, J. P., Allegheny, Pa.
Renie, W. H., St. John's, N. F.
Reynolds, M. G., Anderson, Ind.
Rhoades, W. R., Springfield, Ills.
Rice, T., Jr., Conneaut, O.
Richards, W. A., Springfield, Mo.
Richter, A. W., Madison, Wis.
Roberts, E. R., Pittsburgh, Pa.
Rogers, E. H, Philadelphia, Pa.
Rowland, S. C., Crawfordsville, Ind.
Ruke, C., Swissvale, Pa.
Runner, Z. T. F., Freeport, Ills.
Runyan, C. A., South Haven, Mich.
Russell, J. K., Cheboygan, Mich.
Rontonz, J., Xenia, O.
Rutter, T. V., New York City.
Salmon, F. W., Burlington, Ia.
Sanford, G. B, Denver, Col.
Saunders, H., Mansfield, Ark.
Sayer, E. Y., Denver, Col.
Schaaf, E. W., Denver, Col.
Schaefer, J. A., Denver, Col.
Schmitt, R., Kingston, N. Y.
Schumacher, G., New York City.
Seybolt, E., Genesee, N. Y.
Steward, S. B., Pittsburgh, Pa.
Speigel, W., Evansville, Ind.
Stringham, J. H., Wilkinsburg, Pa.
Storer, H. D., Pittsburgh, Pa.
Sexton, H. W., Anniston, Ala.
Shaw, E. C., Akron, O.
Sherriff, T. E., Wilkinsburg, Pa.
Shields, H. C., Troy, N. Y.
Simpson, H,, Norfolk, Va.
Sloan, J. C., Port Huron, Mich.
Small, L. F., Madison, Wis.
Smith, E., Canton, Ills.
Smith, A. J., Manchester, N. H.
Snell, C. E., Denver, Col.
Snow, W. B., Hyde Park, Mass.
Stannard, C. N., Denver, Col.
Stebbins, E. S., New York City.
Steinwedell, G., Denver, Col.
Stevens, C. H., Memphis, Tenn.
Stevenson, A., Peterboro, Ont.
Stevick, C. H., Denver, Col.
Stillson, H. G., Milwaukee, Wis.
Stone, H. E, Indian Orchard, Mass.
Storrs, C. P., Owego, N. Y.
Strickler, J. P., Columbus, O.
Stritmatter, A., Cincinnati, O.
Stroud, M. W., Philadelphia, Pa.
Spiegel, W., Evansville, Ind.
Suchomel, T., Cedar Rapids, Ia.
Swing, D. R., Columbia, S. C.
Thecker, W. T., Orlando, Fla.
Thomas, C. A., Spartanburg, S. C.
Thomson, G. W., Media, Pa.
Tobey, G. F., Kingston, N. Y.
Tobey, F., Jr., Kingston, N. Y.
Town, H. L., Columbus, O.
Traver, A. F., Grand Rapids, Mich.
Trimble, R. H., Philadelphia, Pa.
Truesdale, A. C., Youngstown, O.
Tudor, F., Boston, Mass.
Unger, J. S., Milwaukee, Wis.
Utley, P. L, Watertown, Wis.
Van Blarcom, H., Pittsburgh, Pa.
Vandemoer, J., Denver, Col.
Vaughn, J. W., Madison, Wis.
Vetters, W., Springfield, Mass.
Vollum, C. N., Philadelphia, Pa.
Vollum, W. H., Chester, Pa.
Walker, W. W., Wilkinsburg, Pa.
White, C. H., New York.
Wagner, E. Denver, Col.,
Walker, E. M., Bristol, Tenn.
Wallace, C. W., Cheyenne, Wyo.
Warfield, H. R., Morgantown, W. Va.
Wasenington, W. D. H., N. Y. C.
Welch, W. McNain, Columbus, O.
Wenban, F. W., Newark, N. Y.
Wheeler, F. B., Syracuse, N. Y.
Whitcomb, H. D. Jr., Newark, N.J.
Whitted, T. B., Chicago, Ills.
Wile, J. I., Rochester, N. Y.
Williams, G., Madison, Wis.,
Williams, H. S., Guelph, Ontario.
Willsey, J. H. Ashtabula, O.
Wilson, G. J., Brooklyn, N. Y.
Wilson, W. A., Portage, Wis.
Witherby, E. C., Syracuse, N. Y.
Wood, T. B., Berlin, Wis.
Wright, W. A., West Duluth, Minn.
Yereance, W. B., New York City.
Young, W. H., Modesto, Cal.
Young, R. W. H., Pittsburgh, Pa.
Zahn, A. W., Mason City, Ia.

Respectfully submitted for the Executive Committee.

T. C. JONES, Secretary.

On motion of Mr. Irvin Butterworth, duly seconded and carried, the Report of the Executive Committee was adopted and ordered spread upon the minutes of the Association.

ELECTION OF NEW MEMBERS.

On motion ol Mr. John D. McIlhenny, the Secretary was instructed to cast the ballot of the Association for the election to membership in the Association of the applicants recommended by the Executive Committee.

The Secretary—Mr. President and Gentlemen: Complying with your instructions as contained in the motion just adopted, it gives me pleasure to cast the ballot of the Association for the election to membership of the applicants referred to in the Report of the Executive Committee. I hereby so cast the ballot of the Association and do declare them all duly elected to membership in the Ohio Gas Light Association. (Great Applause.)

The President—Of course it is understood that the gentlemen whose applications have just been favorably acted upon and who are now full fledged members of the Ohio Gas Association, are cordially invited to participate in these proceedings and to take part in the discussions which follow.

REPORTS OF THE SECRETARY AND TREASURER.

Mr. T. C. Jones, as Secretary, reported as follows respecting the membership: New members admitted at 20th annual meeting, 188; released, 11; deaths, 5; honorary membership to date, 9; active members, 414—the period under review is from March 16th, 1904, to March 15th, 1905, both as to Secretary and Treasurer.

As Treasurer, Mr. Jones reported a total receipt of $3,887.27 for the year, an expenditure of $3,642.19, and a balance of $245.08. On motion the reports were received, adopted and ordered spread upon the minutes.

LETTERS OF REGRET.

The Secretary read the names of many men prominent in the gas industry who had forwarded letters regretting the inability of the writers to be present at the meeting.

Vice-President Donald McDonald (Louisville, Ky.) took the Chair and President Stone read the following

INAUGURAL ADDRESS:

I am glad to address an assemblage of *gas men*. You will notice I say gas men for I am proud that the constitution of the Ohio Gas Light Association is broad enough to admit to active membership anyone "engaged in an occupation identifying him with the gas business or otherwise qualified to assist in promoting the objects of the Association." It is good that men of *all* of the departments of the industry meet periodically, for we are all dependent one upon the other. The manager's success in selling gas is largely dependent upon the efficiency and variety of the appliances sold by the appliance makers, and his success in manufacturing gas cheaply is, in a measure, due to the apparatus provided by construction firms. Satisfactory relations with the gas consumer depend greatly upon the accuracy of the product of the meter firms, and they in turn are dependent upon the gas companies for a market. The various industries are so closely interwoven that any movement which causes a feeling of class distinction, or which would organize any one department of the gas industry separately from the others, would be unwise.

It has occurred to me from time to time that the gas business is popularly taken to be a second-rate one, hardly worth consideration, and that a gas man is not necessarily a man of ability. I cannot tell you the reason for the misconception unless it lies within ourselves, or that we have not valued ourselves sufficiently high, and the world has taken us at our own valuation.

I am afraid we do not realize that this business we represent is one of the broadest and most important in the country—that in the amount of capital invested it will stand among the first 10, and that it commands financial, executive and engineering ability of the highest order.

It does me good sometimes, and it may do you good, to think of the qualities necessary to make a successful gas man. He must be a gentleman; be honest and industrious; have business, executive, and political ability; be a mechanic, engineer and chemist. I care not which branch of the business he is connected with, every gas man must have these qualities to a greater or less degree, if he would be successful. Can you conceive of any other business demanding so wide a range of qualifications? Should we not be proud if we are achieving results? I think we all wish to make a success of our calling. Some few may be in the business for a livelihood only, but the large proportion of gas men are in the business because of their desire to advance in it, to do better work and make more of a success than their fellows. If you please, we are in it for the same reason a man plays a game of cards; we like the excitement and we wish to win. The stakes may be an inducement to win, oftentimes they simply indicate the winner.

Comparatively few of us were educated with the idea of entering the gas business, and in fact I do not know of a course of education that will produce a good gas man. There are no colleges that give such a course, and if a young man were to ask me "What books shall I read to learn the gas business?" I should be unable to tell him, for there is really no satisfactory up-to-date gas literature. To further complicate matters, it is a question whether the commercial or the technical side of the business is to the fore. I heard a prominent man in gas circles say recently, that, given the choice of 2 men, one who could make friends with people and increase sales, or one with technical training who could economize and reduce costs of manufacture, he thought the first would be the best selection as a manager.

Most of us have absorbed our education in the gas business. We have acquired it either from our own experience or the experience of others—mostly from the experience of others—and in this educating

process the Gas Association has been a most potent factor. I venture to say that two-thirds of us have received our gas education either through the papers read at association meetings, discussions on the floor, or from the conversation with other gas men at these meetings. That association work is influential may be proven by the fact that the most successful gas men are those most active in association work. Association work consists in both obtaining and giving. If we are all content to absorb the information our fellows give us, and do not give any in return, if we are content to benefit by the work of our fellowmen and do none ourselves, we will not receive the full benefit of association work and experience.

I have spoken thus fully of association work, and of what may be called the personal side of the gas business, because I wish you to feel that the gas business is really one of high order, a profession to be proud of, a progressive calling, difficult to learn; that you are of consideration in the world, because upon your efforts the success of this business depends; that the more knowledge you have and the more enthusiastic you are the more successful you become; that the gas association is a necessity to you because more largely through that than any other source you derive knowledge and enthusiasm.

The gas associations are making the gas literature of to-day. It is through the associations that progressive ideas are advanced, new methods advocated, experiences exchanged and false practices exposed. What kind of a gas man would you be if you never came in contact with another gas man or read any part of the proceedings of a gas association? No matter what your position, manager, bookkeeper, stoker, salesman or fitter, you are a necessity to the association and owe it your heartiest support for the benefit derived.

At this, the 21st meeting, the Ohio Gas Light Association becomes of age, and with this coming of age comes new responsibilities and new opportunities. Will we meet them? We certainly shall if each member will work unselfishly.

It is with pride that we view the year's work. Our increase in membership this year is unparalleled in association history. This is due to two causes: The solicitation of our friends and the reputation the Ohio Association has for doing things. We simply have to live up to this reputation. We are doing more efficient work than ever before, and we have to do better still.

Among the new departments inaugurated this year is a Bureau of Information, under the direction of Mr. H. L. Olds, which is becoming more useful every day.

The Board of Revision, under the chairmanship of Dr. H. B. Harrop, has done excellent work in editing the Question Box material, and it is hoped that the Board may be induced to continue its labors, as the results will form the basis of a permanent gas literature.

Mr. D. W. Low has performed good work in perfecting the Bureau of Forms and Records, and it is hoped that this Bureau will, by showing the members how different companies keep their books, help toward establishing a uniform system of accounting.

It has been suggested that an Employment Bureau be added to the working departments of the Association. Those desiring employment could file their applications, stating the class of work they are accustomed to and their qualifications. The employer needing help, upon request, would be furnished with the names of those whose applications are filed. Our industry is so scattered with so few in each place that it seems as if such a department would aid greatly in bringing employers and employees into contact.

It would be well if subjects discussed in papers presented to the Association could be followed to a conclusion. It is very seldom that a writer covers all points of a subject in one paper. A large percentage of the papers presented to the Association are voluntary contributions. They are valuable and we are glad to have them, but they would be still more valuable were they followed by other papers dealing with other or new phases of the same subject. To do this thoroughly would no doubt involve the co-operation of the other Associations.

The notable event of the past year was the Gas Congress at St. Louis. The attendance was good. The papers presented were of very high order and the discussions interesting and instructive. Altogether, the Gas Congress was very successful and will contribute a great deal toward bringing the various Gas Associations into closer touch.

The year has been one of activity along all lines, and the outlook is bright for another year of prosperity. There is a marked advance in the use of gas for industrial purposes. It seems as though the cry "Gas for Light, Heat and Power" would shortly be changed to "Gas for Power, Heat and Light."

In some sections of the country the lawmakers seem to be busy imposing upon the public service corporations more than their just share of taxes. In other places an attempt is being made to reduce the prices to be charged to a point where they will not yield a profitable return upon the investment. There is a growing tendency to make political capital by efforts along this line, and while I do not believe that our Association should take any steps to influence legislation, yet I do think we ought to take some action to educate or cultivate a healthy public sentiment in these matters.

The programme prepared for this meeting merits your approval. The writers have devoted thought and time to the preparation of their papers, and the committees to the preparation of their reports. Let us show our appreciation by a full and prompt attendance at the business sessions and close and earnest attendance to the proceedings. We are meeting in the city of Pittsburgh, the great industrial center of the United States, and there are many things to see, but the local committee has generously provided for our entertainment, and we hope that the members will assist by their presence in the carrying out of the plans prepared.

I regret to report that during the past year the following members have passed from us: Capt. J. H Kauke, Wooster, Ohio, March 20, 1904; Gen. Andrew Hickenlooper, Cincinatti, Ohio, May 19, 1904; L. W. Wells, Conton, Ohio, July 4, 1904; J. W. Gwynn, Bucyrus, Ohio, November 19, 1904; J. A. Harris, Philadelphia, Pa., January 19, 1905.

All of these were old and tried members, one of them an organizer of and the first President of our Association. Their counsel and help will be greatly missed. I feel that I cannot, within the limits of this address, do justice to their memories, and would ask that a committee be appointed to suitably present the matter to the Association.

I wish to thank the members of the Association for their efficient and strenuous work during the past year. The spirit of fraternity and willingness shown has been most gratifying, and if continued the future onward progress of the Association is assured.

On motion of Mr. Irvin Butterworth the address of the President was referred to a committee of three (Messrs. E. C. Brown, J. J. Knight and H. A. Carpenter) for consideration and report.

[To be Continued.]

Bunsen Flames--Theories of Combustion.

The *Gas World* says that Professor F. Haber and Dr. F. Richardt have been carrying out protracted investigations, at the Carlsruhe Technical High School, on the physico-chemical process involved in the flame of burning gases. They started with coal gas and mixtures of coal gas with carbonic acid, burned in air. The mixed gas in a bunsen burner is (Lunge) about 31.78 coal gas to 68.13 air; but in the inner green core of the flame there is no oxygen, their being only nitrogen, hydrogen, carbonic oxide, carbonic acid, and water vapor, with a little methane (Blochmann). Of these the H, CO, CO_2, and H_2O are in proportions which depend upon the momentary state of equilibrium of a reversible reaction, that is, $H_2 + CO_2 = CO + H_2O$, or the reverse; and in the green core they come up to the respective equilibrium proportions with extreme rapidity. Methane is always the last component to burn completely. Upon explosion, or on the impact of flame on a cold plate, there is always some methane left unburned; and in the green core of the bunsen flame the methane found (about 0.9 per cent.) is to be considered as an unburned residue of the coal gas. In the outer mantle of the flame the combustion becomes complete. The green core may be considered as an explosion region into which the explosive mixture is led at a pace equal to that at which the explosion tends to travel backwards; and this would lead to studying what goes on in the green core by actual explosion experiments. Horstmann found that Bunsen's and von Meyers's earlier experiments had been vitiated by the presence of water vapor, and the law was, in the presence of an insufficient supply of oxygen, that, in percentages, the quotient $(H_2O \times CO) \div (CO_2 \times H_2)$ was a constant number K, the constant of equilibrium. This constant depended, according to him, only on the temperature, not on the pressure; but the way in which it depended Horstmann could not at that time work out for want of data as to the specific heats of gases at different temperatures. Mallard and Le Chatelier led the way in ascertaining these; Langer had recently (1903) been making very exact determinations; and out of all this it appears that Berthelot's old equation $CO_2 + H_2 = CO + H_2O$—10,100 calories must have, instead of 10,100 the expression $10{,}232 - 0.1685T - 0.00101T^2$, where T is the absolute temeperature. Other consequences would also follow; but then the results of different observers vary too much, and it would appear that the explosion method is not truly applicable, and that the influences of the walls of the explosion chamber vitiate the results.

Temperature of the Green Core.—In 1891 Teclu showed how to split up a bunsen flame into its component parts, getting the green core to burn isolated inside a glass tube, and the outer mantle up above, at the

top of the tube. The isolated green core in this way presents a continuous explosion without bounding walls. In 1892 Smithells and Ingle, independently of Teclu, used this separation to determine the values of the constant of equilibrium from the composition of the gases in the isolated green core; but they fell too much under the influence of Dixons's explosion chamber experiments and published nothing about the temperature of the flame. Their researches appear to have been discontinued. It is the case, however, that there is a condition of equilibrium attained in the isolated green core, and that on cooling down, such condition of equilibrium is not perceptibly altered; and that this enables us from the composition of the gases there produced, with the aid of Van't Hoff's laws of chemical equilibrium, to calculate the actual temperature in the isolated green core. These temperatures, actually measured, are lower than generally thought; and the conclusion is that the formation of water gas in the green core (up to the limit of equilibrium) causes a greater proportion of the energy to be liberated in shorter waves than would be indicated by the temperature taken alone. In the faint aureole surrounding the isolated green core the temperature fell from 1,570° C. at 0.2 cm. above the tip of the core to 1,270° C. at 4 cm. above it; and when the gas used contained 34.2 per cent. of carbonic acid they fell from 1,250° to 1,290°, at 0.5 cm. above the tip, to 990° at 5 25 cm. above it. At the same time the composition of the gas 6 cm. above the flame was almost identical with that calculated from the observed temperature of the hotest part of the flame; the same result being obtained even when the temperature of the flame was variously lowered by the addition of carbonic acid to the gas used.

A Study of the Aureole.—The isolated green core is surrounded by an aureole very faintly visible, but distinct on a photograph. This is well defined below at the boundary between it and the green core; very ill defined above. When we introduce fine NaCl dust into the air supply this aureole becomes taller and broader, as well as yellow in color; and its tip tends to find its way into the hollow of the isolated outer mantle at the top of the glass tube. But the radiations from the aureole are distinctly different from those of the green core itself; so that the nature of the radiations is not a question of temperature alone, for there is no abrupt change of temperature between the green core and the aureole. It must apparently depend also upon the processes that are going on. In the green core we clearly have oxidation taking place, and the luminescence is of chemical origin. In that respect the green core differs from the aureole; not in temperature, as Vicaire, Mallard and Le Chatelier, Gouy and Michelson thought it must. The latter idea is based upon the thermo-dynamics of a gas which, having been heated to the explosion temperature by compression, is still further heated by the explosion itself; but with continuous explosion in the absence of compression the conditions are widely different, and from these it follows that there can be no rise above the explosion temperature. In the former case there is regeneration of heat from a past combustion; in the latter there is the continuous production of heat by combustion steadily going on. The green light is, therefore due to chemical action as Smithells indicated in 1892, more than the temperature.

The light of the aureole is more difficult to explain. If the gases were hot enough, say 1,500° C., we would nowadays be ready to explain the luminescence as due to the temperature; but they are not. The aureole is visible at 1,270° C. for coal gas and even at 1,100° C. for mixtures of coal gas and carbonic acid. Paschen and Julius have shown that gases containing water vapor or carbonic acid are good absorbents and good radiators and readily luminesce when heated. But the very low temperatures under which the aureole remains visible raise the question whether there is not some chemical process going on within the aureole; but it is not easy to see what kind of chemical process this could be. There was no trace of oxygen in the gases above or around the isolated green core; no trace of ozone; no trace of cyanogen; but there were recognizable traces of acetylene, no more. Carbonic oxide by itself scarcely gave any aureole at all; with hydrogen by itself the existence of an aureole was entirely doubtful; and with a mixture of hydrogen and carbonic oxide the aureole remained equally indistinct. There is, therefore, some difference between coal gas and coal gas CO_2 mixtures on the one hand and H_2O, CO, and H_2CO mixtures on the other. The actions are analogous but not identical; and with cyanogen Smithells and Dent obtained beautiful aureoles.

The Transmission of Superheated Steam.[1]

By Mr. Sidney A. Reeve.

There appeared in April, 1904, in the *Zeitschrift des Vereines Deutscher Ingenieure*, an article by Dr. Berner, of Berlin, reporting a number of series of experiments upon the loss in temperature of superheated steam during transmission through pipe lines.

It is well known to those familiar with the use of superheated steam, though usually coming as somewhat of a surprise to others, that the superheat of steam is a thing difficult to transmit to any distance. We are so accustomed to the transmission of saturated steam for hundreds and sometimes thousands of feet, without serious loss of its available power, that it fails to occur to one that the special value lying in superheated steam is not equally stable. It is one of the fundamental limitations in the usefulness of superheated steam that it is applicable only to engines situated near the boiler room, where the superheater is usually located.

These experiments cover a range of pipe sizes and speeds of flow too diverse to report in detail. They can be summarized, however, for all ordinary purposes, in the single statement that, for speeds of flow not departing far from 40 feet per second, and for pipe sizes common in steam power engineering, the loss of temperature will probably lie within the limits of from ¼° to 1° F. per running foot of pipe line. The pipe line is assumed to be covered with lagging of a standard degree of excellence.

General information of a more particular sort may be had from the following tables, which summarize the results:

Table I. gives the loss of temperature in terms of the speed of flow of the steam.

Table I.

Diameter of Pipe. Inches.	Average Pressure Absolute. Lbs pr. Sq. In.	Average Temperature Degs. F.	Average Velocity of Steam Flow. Ft. pr. Sec.	Temperature—Drop per Running Foot of Pipe Degs. F.
8.86	126.0	389	7.52	0.599
	126.0	411	7.91	0.548
8.66 (average)	152.0	578	18.6	0.697
	152.6	562	27.7	0.516
	149.0	558	29.6	0.565
	153.5	557	40.3	0.263
9.06	133.1	445	14.45	0.412
8.86	196.3	626	46.7	0.439
	196.3	412	49.2	0.285
	203.4	448	63.5	0 219
	199.2	457	72.0	0.302
9.45	108.1	474	33.8	0.378

Table II. gives the loss of temperature in terms of the pipe diameter.

Table II.

Diameter of Pipe Inches.	Average Pressure Absolute. Lbs. pr. Sq. In.	Average Temperature Degs. F.	Average Velocity of Steam Flow. Ft. pr. Sec.	Temperature—Drop per Foot of Pipe. Degs. F.
9.45	108.2	474	33.8	0.379
8.86	198.0	620	45.7	0.406
5.90	179.0	468	36.6	0.236
	180.4	462	35.7	0.236
4.92	150.4	417	37.5	0.406
2.56	111.4	708	48.0	0.917

Table III. gives Dr. Berner's conclusions as to the probable drop under the conditions given, the steam pressure being 185 pounds absolute and the steam temperature 482° F.

Table III.

Diameter of Pipe. Inches.	Temperature Drop per Foot of Pipe. Steam Velocity—33.8.	65.6.	98.4
3.93	0.505	0.252	0.164
7.87	0.252	0.175	0.082
11.80	0.170	0.082	0.055
15.75	0.126	0.060	0.044

1. *Jour. Worcester Polytechnic Inst.*

An Improved Form of Ammonia Stills.

[Communicated to *Jour. Am. Chem. Society* by Messrs. George E. Thomas and Claude M. Dugan, Jr.]

The apparatus represented in the accompanying drawings has been devised to meet the demand for a design more compact than those now used.

Fig. 1 shows the plan of a battery of 12 stills. The flasks rest on wire

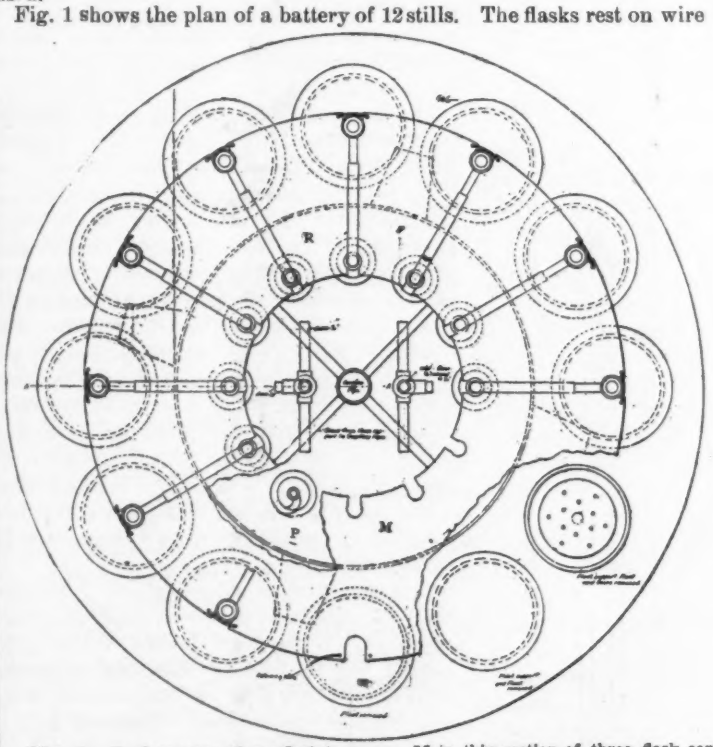


Fig. 1.—*R*, glass connections; flask to worm, *M*, in this section of three, flask connections and worms are removed, showing openings in support for the rubber stoppers through which upper end of worms pass. *P*, support removed, showing glass condenser worm.

gauze, supported on round cans of ¼-inch sheet iron with locked seams. These are perforated to aid combustion, as well as to facilitate the lighting of the burners, which are of the Fletcher pattern, as shown in Fig. 2. The gas supply is governed by individual cocks beneath each burner, and a valve connected with the main pipe.

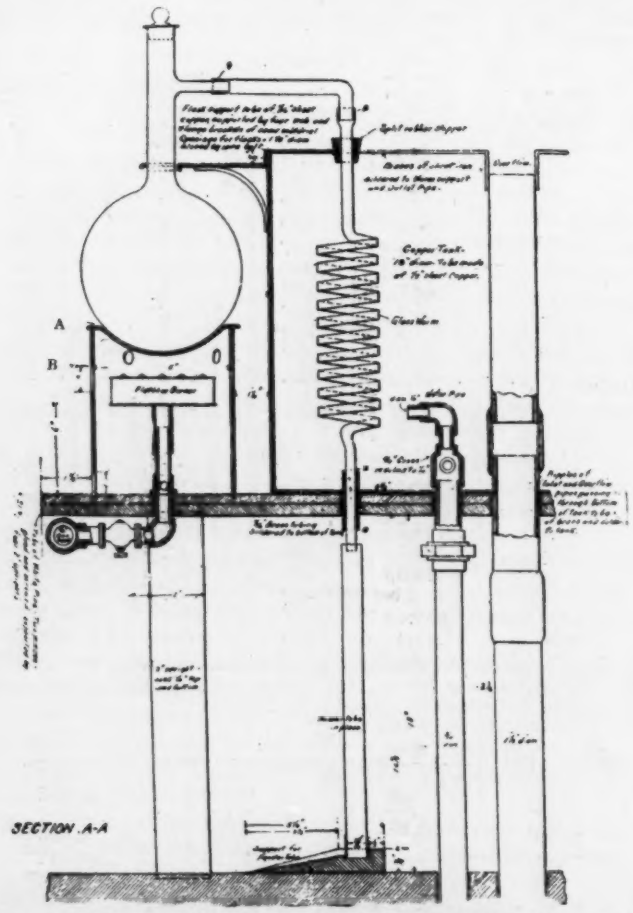


Fig. 2.—*A*, flask supported by copper gauze. *B*, flask base to be of best quality sheet iron, ⅛ inch thick, locked seam—simply a round can without top or bottom—four ⅛-inch round holes ¾ inch from top edge and one 1-inch opening to allow tightning of burner and semi-circular opening at bottom for air inlet, as shown.

The flasks are joined to the worms by the side necks, which enter the tube *C*, and in turn are connected with the worms, and so arranged that the rubber tubing *B* and *B* does not come into direct contact with the steam.

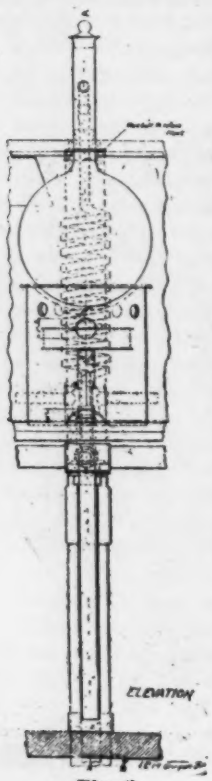


Fig. 3.

The worms of glass or block tin are secured to the condenser tank by split rubber stoppers, which fit in sockets in the sheet copper, partially covering the condenser, and at the bottom are bound by rubber tubing, beneath and above, to the brass tubes soldered to the floor of the condenser. The provision for independent worms relieves the necessity for putting the whole system out of service for repairs. The condenser is of ½-inch copper, 24 ounces per square foot, partially covered by the sheet copper, as mentioned, which is stiffened by braces soldered to the overflow pipe, also extending beyond its walls, acting as a support for the flasks, which are held in position by the bolts *d*.

The water is supplied by pipes *a* and *a*, and removed by the overflow pipe *e*, insuring satisfactory circulation.

The apparatus is supported on a circular shelf 36 inches in diameter, (Fig. 3), which rests upon an octagonal table 52 inches wide, having two funnels on either side connected with the overflow pipe for convenience when washing the Nessler tubes. These are held in position by sockets between each worm, and when not in service are stored on shelves beneath the table.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

THE Dodge Coal Storage Company has acquired the business of the United Telpherage Company, of New York. Communications intended for the latter company should be addressed to "The United Telpherage Department" of the Dodge Coal Storage Company, 49 Dey street, New York.

MR. H. W. O'DOWD, for 8 years superintendent of the Wm. M. Crane Company's factory, withdraws from its service the 1st prox.

MR. GEORGE L. LEWIS announces the purchase of the Rochester and Eastern Railway, the Ontario Light and Traction Company and the Canandaigua (N.Y.) Gas Light Company. It is understood that Buffalo capitalists are behind the purchase, the true purport of which will be disclosed early this month.

THE Bonhan (Tex.) Gas Company has been incorporated by Messrs. H. C. Carleton, M. C. Spivy, H. H. Holland, M. B. Young, J. L. Ware Jr., W. R. White and W. W. Brownlee. It is capitalized in $25,000

THE plant of the Stafford (Conn.) Electric Light and Gas Company will not be shut down, the receiver having obtained the necessary permission for its continued operation from Judge Reed.

MR. R. R. MACKENZIE has resigned the position of superintendent of the electric department of the Clinton (Mass.) Gas Company, the resignation to become effective the 30th inst. His successor will be Mr. Fred L. Fullam, now in charge of the gas division of the Company's properties.

AT the annual meeting of the Middletown (Conn.) Gas Light Company the following directors were re elected: William H. Burrows, William T. Elmer, Lyman D. Mills and H. L. Mansfield.

TO-DAY the voters of Battle Creek, Mich., will have an opportunity to decide whether or not the authorities shall construct a gas and electric lighting plant, to be operated on municipal account.

MR. MILES LEWIS PECK, as President, is responsible for the following notice: "Sealed proposals will be received by the Bristol and Plainville Tramway Company, at the office of the Company, Bristol Conn., up to and including 4 o'clock P.M., April 12th 1905, for laying approximately 10 miles of cast iron gas mains and specials, in the town of Bristol, Conn. Specifications are on file in the office of the Company and may be seen by all persons interested."

A MEMBER of the fruit importing house of Messrs. A. Grossenbach & Co., whose warerooms are in the premises, Nos. 299 to 303 Broadway, Milwaukee, Wis., recently had this to say: "We find that ripening bananas by gas has solved a problem which has caused fruit men a great deal of concern. It keeps the temperature uniform in the banana room, and we can also adjust the heat to exactly the temperature required by the state of the banana when put into the ripening room. It doesn't deviate a particle after we have regulated it. The air can be moistened to just the right degree also by the use of water with a gas heating apparatus. Every banana room that is run in this way is run on the most scientific principles known to the business. I can also testify to the cheapness of this method."

THE Ohio Fuel and Supply Company, of Columbus, (O.) is endeavoring to secure a franchise for the supply of gas to the residents of London, O.

AN act to incorporate the Kent County (R.I.) Gas Company is now before the Rhode Island Legislature. Messrs Edward E. Arnold, Howard Richmond and Job S. Carpenter are named as the incorporators. The Company is given power to manufacture and sell gas for the purposes of light, heat and power to the residents of Warwick, Coventry and East Greenwich, and in that part of the towns of Cranston and Scituate comprising the villages of Fiskeville, Jackson and Hope. The Company is given power to lay necessary pipes, and the capital stock is not to exceed $100,000. It may issue bonds and secure same by mortgage on its franchises and other property not to exeeed $50,000.

NEGOTIATIONS have been concluded whereby the Wyoming Valley Gas and Electric Company has purchased a large tract of land from the Myer's estate, west of the D. L. & W. Railroad, on which the Company's main plant will be located, instead of at Plymouth, as originally intended. It is understood also that the main offices will be located at Kingston, where a very handsomely fitted local office is already

maintained. As was noted recently in the JOURNAL, the Company has planned to erect a thoroughly modern and fully equipped plant and to enlarge and improve the service generally.

THE plant of the Duplex Gas Radiator Company at Newton, N. J., has been shut down.

AT a recent meeting of the Board of Directors of the Suburban Gas Company, of Chester, Pa., a resolution was adopted putting the net selling rate at $1.10 per 1,000 cubic feet.

AT the annual meeting of the shareholders in the Winston-Salem (N. C.) Gas and Lighting Company, the officers elected were: Directors, E. B. Jones, E. H. Wilson, W. H. Coates, Clayton F. Banks and Edward H. Austin; President, E. B. Jones; Secretary and Treasurer, W. H. Jenkett; Manager, B. N. Sullivan.

THE proprietors of the Boise (Idaho) Gas Light Company have determined to construct a plant for the manufacture of tarred roofing felt. President Ross of the Company, when spoken to on the subject, said: "Yes, it is true that we intend to put in a plant for the manufacture of tarred paper. I am now figuring with the manufacturers of the machinery and expect to order the same within a couple of weeks. Within 2 months we should have it in operation. The amount of tar we get from our gas plant will not permit us to start on a very large scale. I cannot say just how large our output will be until I have gone further into the matter, but I expect it will be large enough to supply the market in Boise and surrounding towns. There is a gas plant at Baker City, but it does not produce tar enough to warrant the placing of a tarred paper works, and if a satisfactory price can be agreed upon it is possible we will secure that output, which will enable us to engage in the business on a larger scale. At Pocatello there is talk of putting in a gas plant which if done will furnish more tar for someone to secure and work up."

MANAGER MORTON and President Pratt, of the Boone (Ia.) Gas Company, have agreed upon a plan of campaign for the season that is bound to result in the placing there of many gas ranges this summer. A solicitor has been employed and Miss Morton has been engaged to give a series of demonstration lectures on how to cook by gas.

THE projectors of the Citizens Gas and Fuel Company, of Oxford, Pa., are about ready to ask for bids on plant construction account.

IT is said that certain Pittsburgh, Pa., capitalists have made a bid for a controlling interest in the properties of the Kenton (O.) Gas and Electric Company.

MR. DANIEL UPTON, for many years prominent in the affairs of the Adams (Mass.) Gas Company, in fact, up to the time of its absorption by the North Adams Gas Light Company, died in Adams about a fortnight ago. He was in his 87th year.

A CORRESPONDENT in Mason City, Ia., writing under date of the 25th March, incloses the following ordinance recently adopted by the Mason City Council for the regulation of gasfitting and the inspection of same in that city:

Section 1. No person, firm, association or corporation shall hereafter construct, extend or alter any system of pipes for the conveyance, distribution or use of illuminating or fuel gas in any building, premises, or establishment in Mason City, except in conformity with the provisions of this ordinance. Before any person, firm, association or corporation shall hereafter construct, extend or alter any system of gas piping, he shall file the plans of such work in the office of the City Clerk, where they shall be examined by the inspector and approved by him, or altered under his directions or under the directions of the City Council.

Sec. 2. In all systems of gas pipings hereafter constructed in any building in Mason City the size of pipes shall not be less, and the length of pipes shall not be greater, in respect to the number of burners to be used thereon than those specified in the following table:

Size of Pipe. Inches.	Greatest Length Allowed. Feet.	Greatest Number Burners.
⅜	10	2
½	20	4
¾	50	12
1	70	25
1¼	100	45
1½	150	70
2	200	150
2½	300	250
3	450	400
4	600	750

No ¼-inch pipe shall be used, unless exposed for a short time only, and for not more than one burner. Pipes shall not be covered before inspection.

Sec. 3. The pipe used shall be the best quality of wrought iron and fittings may be wrought or malleable iron. All pipes shall be suitably supported and stayed with pipe hooks, straps and screws. All pipes must run at least level. All split pipes must be removed. Pipes must be free from traps and no drips will be allowed except where absolutely necessary. No cement shall be used in the pipes or fittings. Pipes shall not be painted or covered before inspection is made. All drops and openings for wall brackets must be made with a bend or long drop ell, the concealed ends of which should be at least 6 inches long and be well fastened with gas hooks or straps. Ells and nipples or fastenings with nails will in no case be allowed; when outlets are not in close proximity to studding or joists, a notched wooden crosspiece must be securely fastened to secure the same. Drops in large rooms must be not less than ½ inch. All main risers shall be run in an inside partition. The riser pipe or main outlet from meter must not be less than ¾ inch. In blocks or store buildings each house or store must be provided with separate riser. Each gas meter shall be located subject to the approval of the inspector. The service pipe shall be run inside of the building: and both connections with the meter shall be made by the gas company.

Sec. 4. No extension or alteration of any existing system of gas piping in any building shall be made without the inspection and approval of the inspector, in case where more than 40 feet of exposed gas piping and more than 3 gas outlets are put in, or 6 feet of concealed piping with one opening. In case of small jobs, notice of such work must be sent to the inspector, giving an outline of the work to be done, location and owner's name.

Sec. 5. Upon the completion of any system of gas piping in any building of the city and before the floors are laid or the pipes and the fittings concealed, the gasfitter or other person doing the work shall file in the office of the inspector an application for inspection of such system of gas piping, and thereupon the inspector shall promptly cause the same to be inspected and tested with a pressure of not less than 6 inches upon a mercury gauge. The gauge and air pump for such testing to be furnished by the gasfitter or other person doing the work. If the testing and inspection be satisfactory to the inspector a certificate of approval shall be issued by him. No meter shall be attached to any pipe or system of gas pipes previous to the issuance of such certificate.

Sec. 6. All gasfittings shall be done by a duly registered and licensed plumber, and the same shall in every case be under the general supervision and direction of the plumbing inspector, and shall throughout correspond with the requirements of these ordinances in respect of all gas fittings.

Sec. 7. Any person who shall violate any of the provisions of this ordinance shall, upon conviction thereof, be subject to a fine of not less than $10 nor more than $100, or imprisonment until such fine is paid, not exceeding 90 days.

WE understand that the Jersey Shore Gas Company has determined to make considerable plant betterments, the contract for which has been awarded to Mr. Frank D. Moses, of Trenton, N. J.

THE Tacoma (Wash.) Gas and Electric Light Company has purchased a plot of ground at 21st and A streets. The Company will erect thereon a storage holder up to retaining 500,000 cubic feet.

MR. L. R. MITCHELL, of Siasconset, writing to us under date of the 28th March, incloses the following: "After two postponements, all the property of the Nantucket Gas and Electric Company, which is located in the place from where 'Sconset derives a portion of its living supplies, was sold at auction yesterday; or, what is equally the same thing, at receivers' sale. The purchaser was Mr. Leslie K. Storrs, at his bid of $26,000. The property was purchased free of incumbrances, which include a mortgage to the Mercantile Trust Company for $20,000 and a lien held by Messrs. W. H. Wyer & Co."

THE Economical Gas Apparatus Construction Company, of Toronto, Ont., has applied to the authorities of Sydney, N. S., for the right to there construct and operate a gas works. It is estimated that the enterprise will require an expenditure of $40,000.

MR. A. R. HUNTINGTON has resigned the position of General Superintendent of the United Gas and Electric Company, with headquarters at San Jose, Cal.

THE proprietors of the Indianapolis (Ind.) Gas Company have notified the holders of the 6 per cent. bonds that the entire issue (amounting to $2,750,000) will be redeemed at 105 and interest, May 1st next, at the office of the New York Central Trust Company.

THE proprietors of the Wichita (Kas.) Gas, Electric Light and Power Company have made a notable addition to their real estate holdings through the purchase of the tract known as the "Dixie Lee" property.

The Market for Gas Securities.

The investigating committee of the joint House of the Senate and Assembly has assembled, their assembling being labelled yesterday. The committee met in the councilmanic chamber of the city of New York, and senior counsel Hughes did his best. At the outset he read much from ancient charters, respecting one of which Mr. J. Pierrepont Morgan could give him vast information. The charter bears a good old Dutch name, and its results to J. P. M. and his heirs and assigns were such as to preclude cheap gas for New York and its residents for many a day. In the meantime the committee is sitting, and let us hope that its Easter egg will be of the Leghorn variety. Consolidated stands the strain nobly. It is about a point higher than it was a week ago. To go back a bit it might be the Consolidated Gas Company *will* have to supply the city with gas at 80 cents per 1,000, the public at 90 cents, the scale to go at the rate of 2 cents decline per year for 5 years on each account.

Brooklyn Union (nominal quotations) 205 to 210 are 20 points below even speculation merit, and "remaining Baltimores" are quoted at 87½ to 88½. Cincinnati Gas and Electric is 108½ bid, ex div., and Washington, D. C., is quoted at 334½ to 335½.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 Wall Street, New York City.

April 3.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share.

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked.*
Consolidated	$73,177,000	100	207	207½
Central Union, Bonds, 5's	3,000,000	1,000	108¼	110
Equitable Bonds, 6's	1,000,000	1,000	105	..
" 1st Con. 5's	2,300,000	1,000	118	120
Mutual	3,500,000	100	300	320
Municipal Bonds	750,000	..	..	..
New Amsterdam Gas Co. .. Bonds, 5's	11,000,000	1,000	112	113¼
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	35	..
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	..	..	..
Northern Union, Bonds, 5's.	1,250,000	1,000	104	106
New York and East River.. Bonds 1st 5's	3,500,000	1,000	112	114
" 1st Con. 5's	1,500,000	..	106¼	108½
Standard	5,000,000	100	125	130
Preferred	5,000,000	100	145	155
Bonds, 1st Mortgage, 5's	1,500,000	1,000	116	117
Yonkers	299,650	500	130	..
Out-of-Town Companies.				
Brooklyn Union	15,000,000	100	205	210
" " Bonds (5's)	15 000,000	1,000	113	115
Bay State	50,000,000	50	¼	⅜
" ncome Bonds	2,000,000	1,000	..	75
Binghamton Gas Works	450,000	100	28	30
" 1st Mtg. 5's	500,000	1,000	93	96
Boston United Gas Co.— 1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	5¾
" " Bonds, 5's	5,250,000	1,000	66	68½
Capital, Sacramento	500,000	50	..	35
Bonds (6's)	150,000	1,000	..	..
Chicago Gas Co. Guaranteed Gold Bonds	7,650,000	1,000	104	104¼
Cincinnati Gas and Electric Co	29,500,000	100	108¼	108½ x
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	97½	99
Columbus (O.) Gas Lt. & Heating Co	1,682,750	100	88¼	89¼
Preferred	3,096,500	100	107½	109
Consumers, Toronto	,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	87½	88½
Mortgage, 6's	3,500,000	..	..	118
Chesapeake, 1st 6's	1,000,000	..	..	..
Equitable, 1st 6's	910,000	..	..	..
Consolidated, 1st 5's	1,400 000	..	..	112
Consolidated Gas Co. of N.J.	1,000,000	100	15	17
" Con. Mtg. 5's	880,000	1,000	89½	92
Bonds	75,000	..	..	100
Detroit City Gas Co.	4,225,500	50	..	50
" Prior Lien 5's	5,603,000	1,000	99½	100
Detroit Gas Co., 5's	761,000	1,000	75	75¼
" Inc. 5's	16,000	100	98½	100
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	..	101
Essex and Hudson Gas Co.	6,500,000	..	39	40
Fort Wayne	2,000,000	..	..	..
" Bonds	2,000,000	..	55	..
Grand Rapids Gas Lt. Co. 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	..	104½	105½
" Bonds, 5's	10,500,000	..	107	108
Indianapolis	2,000,000	..	70	75
" Bonds, 6's	2,650,000	..	106½	108
Jackson Gas Co	250,000	50	82	..
" 1st Mtg. 5's	290,000	1,000	101	102½
Kansas City Gas Light Co., of Missouri	5,000,000	100	..	36
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede, St. Louis	10,000,000	100	..	..
Preferred	2,500,000	100	95	105
Bonds	10,000,000	1,000	108½	109
Lafayette Gas Co., Ind.	1,000,000	100	..	60
Bonds	1,000,004	1,000	60	65
Louisville	2,570,000	50	138	140
Madison Gas & Elec. Co. " 1st Mtg. 6's	350,000	1,000	107½	109¼
" 6 per cent. scrip, due 1910	100,000	25	85	87
Montreal, Canada	2,000,000	100	218	218¾
Nashville Gas Lt. Co.	1,000,000	100	110	..
Newark, N. J., Con. Gas Co.	6,000,000	..	56	58
Bonds, 6's	4,600,000	..	105	105½
New Haven	2,000,000	25	200	..
Peoples G. L. & Coke Co., of Chicago	25,000,000	100	111¾	111⅞
Peoples Gas Lt. & Coke Co., Chicago, 1st Mortgage	20,100,000	1,000	..	..
2d "	2,500,000	1,000	104	..
Rochester Gas & Elec. Co.	2,150,000	50	88	..
Preferred	2,150,000	50	118	..
Consolidated 5's	2,000,000	..	87½	90
San Francisco, Cal.	15,800,000	100	58½	58¾
St. Joseph Gas Co. " 1st Mtg. 5's	751,000	1,000	94	96
St. Paul Gas Light Co.	1,500,000	100	45	47
1st Mortgage 6's	650,000	1,000	118	116
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DIVIDEND NOTICE.

OFFICE OF THE UNITED GAS IMPROVEMENT CO., N. W. CORNER BROAD AND ARCH STS., PHILADELPHIA, PA., Mar. 8, 1905.

The Directors have this day declared a quarterly dividend of 2 per cent. (one dollar per share), payable April 15th, 1905, to stockholders of record at the close of business, Mar. 31, 1905. Checks will be mailed.

1553-5 LEWIS LILLIE, Treasurer.

WANTED,

Position as Manager or Superintendent of a Gas Plant

Sending out 100 (00,00) or upward, with which increase of consumption is a moving factor, and salary is contingent on such increase.

1556-2eot Address, "L.," care this Journal.

Position Wanted

As Manager or Superintendent of Gas or Gas and Electric Property,

By man of large experience in all details of manufacturing, distributing and developing of new business. References furnished. Address, "C. B.,"

1556-4 Care this Journal.

Position Wanted

By a man of many years' experience with a large company, to take charge of the distribution from the time the gas leaves the works. Can go into the meter shop and act as repair man, if wanted, at any time. Can give the best of references.

1556-3 Address, "J.," care this Journal.

POSITION WANTED.

An American gas engineer, with technical education and wide experience in coal and water gas plants (six years in English gas works), desires engagement as engineer, manager or superintendent of a medium sized gas works in this country or abroad Best of references from present employers and others.

1553-5 Address, "P.," care this Journal.

Position Wanted

By young man 23 years' of age, as clerk or foreman of works under progressive management. Has had six years' experience in gas business, and is at present connected with distribution end of Massachusetts company. References as to character and ability from present employers.

Address, "F. G.,"

1556-2 Care this Journal.

Position Wanted

A young man with an extensive experience in the construction and operation of both coal and water gas plants, desires a position as superintendent or engineer. Best references.

1556-3 Address, "C. B. J.," care this Journal.

Situation Wanted

By Thorough Meter Repair Man and Adjuster.

Can set meters and connect stoves. Would like to hear from company in town of from 25,000 to 50,000 inhabitants. Best references. Address, "GAS METER,"

1556-1 Care this Journal.

Position Wanted

By a young man with 7 years' experience in the gas, water and electric business, as bookkeeper, collector and solicitor, with a knowledge of the manufacture and distribution of coal and water gas, and who is open also to any position in those lines.

1556-2 Address, "AMBITION," care this Journal.

WANTED,

A Position as Superintendent.

Over 10 years' experience in construction, development, manufacturing and financial departments of gas companies.

1554-3 Address, "W. J.," care this Journal.

WANTED,

For early summmer engagement,

LADY DEMONSTRATOR

In gas stove work. Give dates open, terms, etc., to SELMA LIGHTING COMPANY,

1556-1 SELMA, ALA.

WANTED, AT ONCE,

A Good Canvasser for Fuel Appliances, Etc ,

For 2 or 3 weeks. Address. stating terms,

SAG HARBOR LIGHTING CO.,

1556-1 SAG HARBOR, N. Y.

CANVASSERS WANTED.

Two Experienced Canvassers, to Sell Gas Appliances.

One for Central and one for Northern New York. Address, giving experience had and where, and salary wanted,

GEORGE W. GRAVES,

1555-3 HOTEL HICKS, Williamsport, Pa.

DRAUGHTSMAN

Wanted immediately. Must be first-class and experienced in retort house drawings. Permanent position. State salary expected.

Address, "J. M. W.,"

1555-4 Care this Journal.

WANTED,

Gang Foreman and Good Caulkers

For the laying of street mains; also,

First-Class, Experienced Canvasser

For gas range and appliance business. State experience and salary expected. Address,

WILKES BARRE GAS & ELECTRIC COMPANY,

1555-2 Wilkes Barre, Pa.

GAS PLANTS WANTED.

A party desires to purchase small or medium sized gas plant, which can be developed, in a good town in the States of Indiana, Illinois, Michigan or Iowa.

1554-3 Address, "CAPITALIST," care this Journal.

WANTED,

A GAS PLANT

In a city of 15,000 or more. Address,

NATIONAL GAS & WATER COMPANY,

1546-3mos 184 LA SALLE ST., CHICAGO, ILLS.

WANTED,

SECOND-HAND, No. 6 ROOT EXHAUSTER.

Must be in good order. State price.

Address, "EXHAUSTER,"

1554-tf Care this Journal.

FOR SALE.

One 15,000 Cubic Foot Holder, for brick tank.

42-Inch Station Meter, with 6-inch connections.

One Set Kerr Murray Purifying Boxes, 8 feet by 8 feet by 3 feet, with new covers, 8-inch dry centerseal and connections.

One 8-Inch Horizontal Pipe Condenser.

Two Scrubbers, 30 inches by 14 feet, with cast iron base.

Address, F. W. FREESE,

1556-2 FORT WAYNE, IND.

FOR SALE,

One 10-Horse Power Otto Gas Engine, Tank and Batteries,

Latest style; used six months. Address, the

SARATOGA GAS, ELECTRIC LIGHT & POWER CO.,

1545-tf Saratoga Springs, N. Y.

GASHOLDER FOR SALE.

We have a 31,000 cubic foot holder (50 feet in diameter) for sale. Holder is in brick tank. Erected by Deily & Fowler.

KALAMAZOO GAS COMPANY,

1552-tf KALAMAZOO, MICH.

COAL TAR FOR SALE.

SEVEN HUNDRED BARRELS OF COAL TAR,

In good packages. Address, the

DAYTON GAS LIGHT AND COKE CO.,

1555-2 DAYTON, O.

FOR SALE,

The following second-hand gas works apparatus and fixtures:

One No. 2 Root Exhauster, 6-inch connections; engine on base of same; in good shape.

One 4-Foot American Station Meter (in bad repair, but frame all right), for 6-inch connections.

Two Sets Castings, complete, for two benches of 6's; all for 7-inch connections.

Two Sets Castings, complete, for two benches of 6's; all for self-sealing mouthpieces; nearly new.

One Connelly Street Governor, 6-inch connections.

All the above we offer were in service up to a short time ago, being displaced when we built an entirely new plant. Here is an opportunity to buy material at a bargain.

1555-6 IOWA CITY GAS LIGHT CO., Iowa City, Ia.

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Utilize Your Gas Liquor.

NO EXTRA LABOR OR OPERATING EXPENSES.

IMPROVED AMMONIA CONCENTRATOR

About 10 in use. Write to

STROH & OSIUS, Patentees, or

MICHIGAN AMMONIA WORKS, - Detroit, Mich

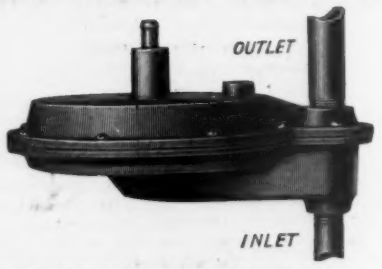
REYNOLDS

HIGH PRESSURE GAS GOVERNORS.

Our Governors Reduce 30 or 40 Pounds Pressure to 2 Inches Water Pressure.

WE MAKE ALL SIZES OF

DOUBLE DISTRICT GOVERNORS.



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Write for Catalogue and State what you Need.

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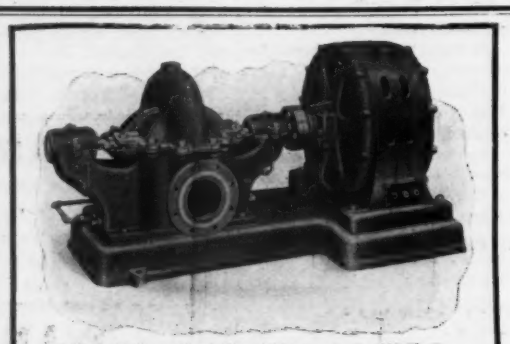

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Our Paints will not crack, peel or scale. Heat does not affect them. They are moisture proof.

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Half and Full Depth Benches of Our Own Design, Containing 6, 8 or 9 Retorts.

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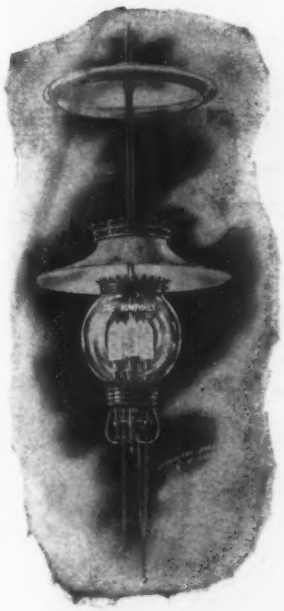

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The "Air-Light"

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GENUINE "AIR-LIGHTS,"

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or any separate portion of the same, such as **Gasholders, Coal Gas Benches, Lowe-Sutherland** double-superheater **Water Gas Sets,** Scrubbers, Condensers, Exhausters, Purifying Boxes, Street Governors, Street Mains and Main Laying.

The high character of the work done by A. M. Sutherland during the past 15 years will be strictly adhered to and all work is warranted.

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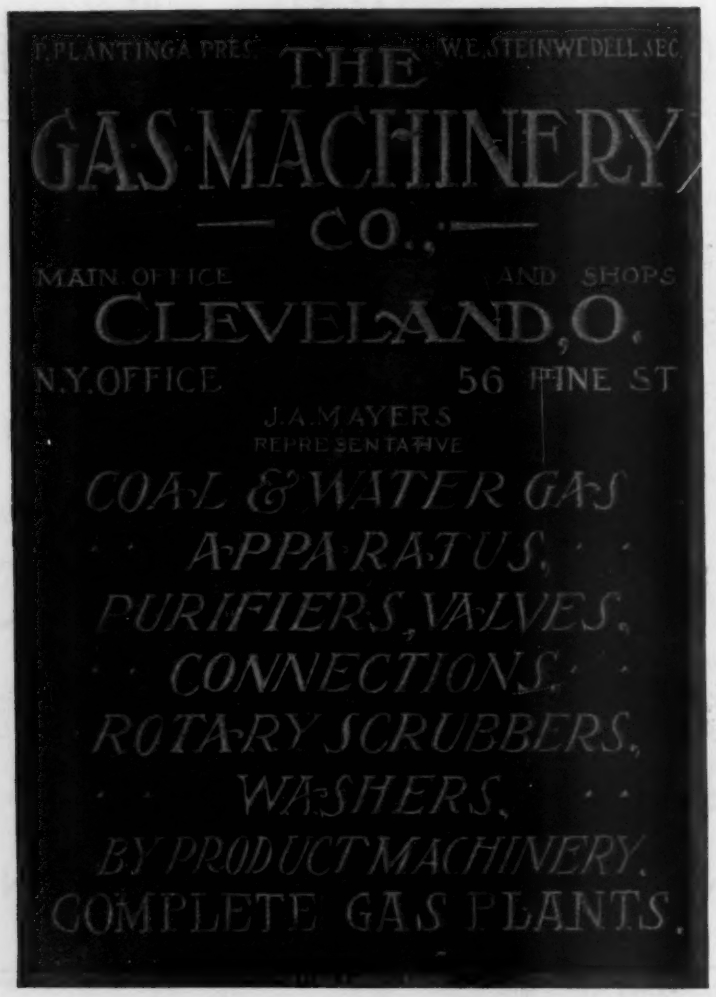

This is No. 2.

Height, 36 inches.
Diameter, 12 "
Shipping weight, 80 lbs.
Net weight, 50 lbs.
The products of combustion are entirely separate from the water. Entire water surfaces are tinned.

Price, $35.00.

HOT WATER

FOR BATHROOM AND KITCHEN

is most easily, quickly and economically supplied by a

Humphrey Crescent Instantaneous Water Heater.

Prices range from $20 to $45.
Every Heater GUARANTEED.

Set a heater for every gas consumer. You will please them and increase sale of gas at the same time.

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The only manufacturers in the World of a COMPLETE LINE OF INSTANTANEOUS WATER HEATERS.

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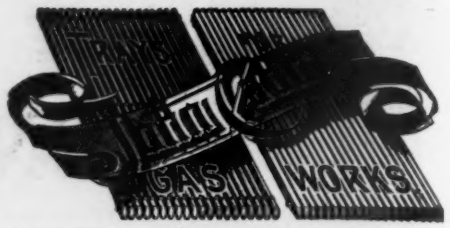
Special Trays for Iron Sponge.



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You can buy burners that cost less than

BRAY BURNERS,

But all you save on the first cost will be lost a hundred times over in the increased number of complaints and dissatisfied consumers.

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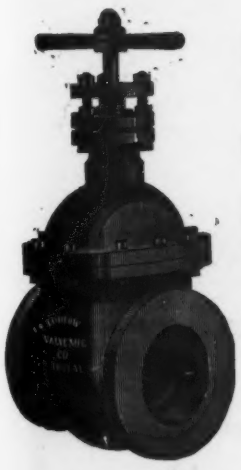

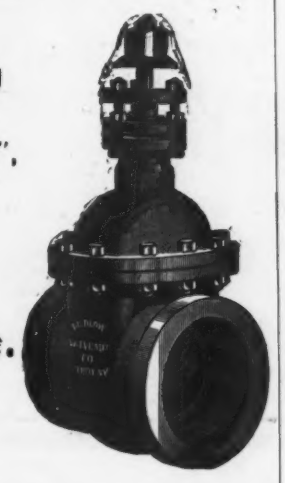

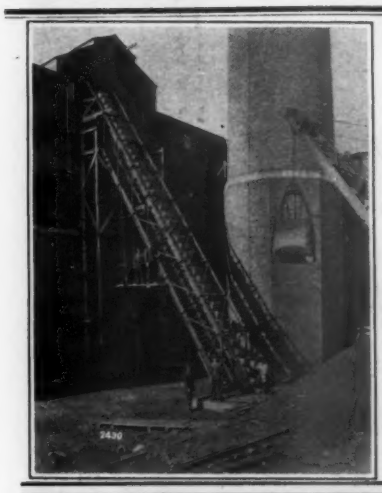

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"Link-Belt" covers every step of this installation—not only the chain and conveyors, but the track hopper, the crane, the steel truss work—the entire design and construction of the machinery.

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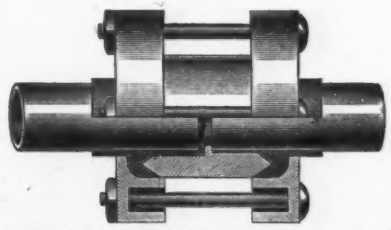
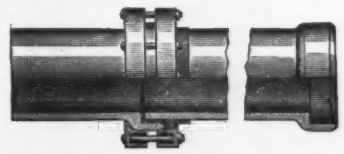
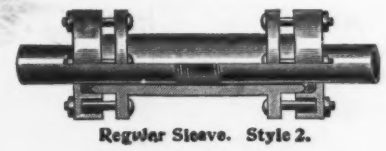
Patentee and Manufacturer of Specialties for Oil and Gas Lines.



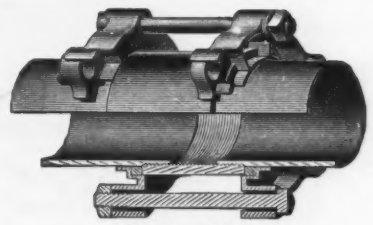
Insulating Coupling for Wrought Iron Pipe. Style 5.



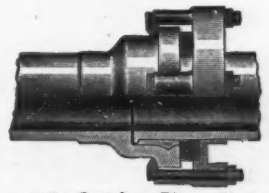
Insulating Coupling for Dresser Bell and Spigot Cast Iron Pipe. Style 6.



Regular Sleeve. Style 2.



Clamp. Style 4.



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Pipe Couplings, Sleeves, Clamps, Crosses, Tees and Ells.

My Insulating Coupling prevents the destruction of pipe by electrolytic action, in either water or gas lines.

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DETROIT, MICH., March 27, 1905.

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If a gas cock is tapped with a tool the least below standard gauge, the pipe cannot be screwed in far enough to make a good connection.

Mueller Gas Cocks are tapped with tools frequently measured, and if the tools show the least wear they are corrected to standard gauge by skilled tool makers. The pipe can always be screwed into the cock far enough to make a sound joint.

FLAT HEAD METER COCK.

C—1166.

Mueller Gas Cocks are made in straight, oval and round way patterns; the straight being made in the standard, extra and special grades, the oval in the extra grade only, and the round in the standard and extra grades. The cock illustrated is a straight way, special grade, flat head meter cock.

"Each cock is carefully inspected and assembled, is given a working test as near like actual service use as possible, bears the Mueller trade mark, and is *unconditionally guaranteed.*

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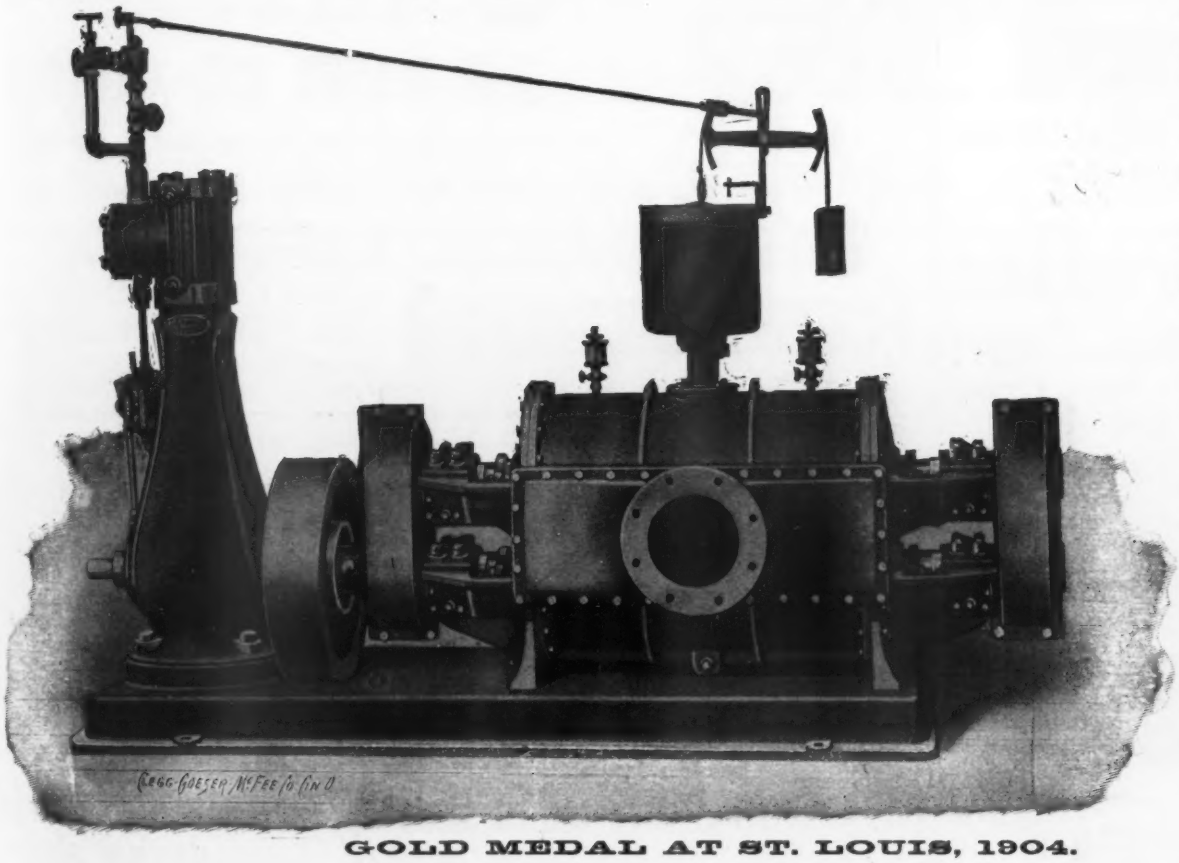

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Most perfect and sensitive Governor.

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We can send you scores of testimonials from customers, but if you are not yet using our attachments we will send you a sample, free. Try it. If not the you have ever used, we will not expect your trade. :: :: :: :: :: :: **BEST** Long warning to consumers, entirely preventing fatal accidents. Other important features.

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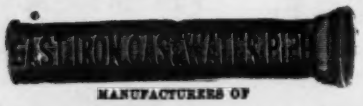

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FOR WATER AND GAS.

Also, FLANGE PIPE, LAMP POSTS, Etc.

GAS TAPPING MACHINES

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Drilling and Tapping Pipe under Pressure

WITHOUT ANY ESCAPE OF GAS.

They are Strong and Compact.

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Machines Sent to any Gas Company for Thirty Days' Trial.

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FROM THREE TO FORTY-EIGHT INCHES DIAMETER. ALSO, ALL SIZES OF

Flange Pipe for Sugar House and Mine Work. Branches, Bends, Retorts, etc., etc.

UNIVERSAL PIPE HAS

METALLIC JOINTS
THAT DO NOT LEAK.

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Manufacturers of Lead Pipe, Solder, etc., and Jobbers of Plumbers' and Tinners' Goods.

CAST IRON PIPE and SPECIALS FOR WATER AND GAS.

Wholesale Eastern Agents AKRON VITRIFIED SEWER PIPE.

SAFETY GAS MAIN STOPPER COMPANY,

For Shutting Off Gas in Mains Temporarily during alterations and repairs. : : : :

Any size gas main can be shut off in 30 seconds. : : :

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BARS FOR HAZELTON BOILERS.

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OPEN TOP CARRIER.

ESPECIALLY ADAPTED FOR HANDLING

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Or any heavy or gritty materials, where strength and durability are essential. Constructed in any length or capacity, and to suit local conditions.

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Photometrical and Experimental Apparatus.

PUBLIC LIGHTING TABLE.

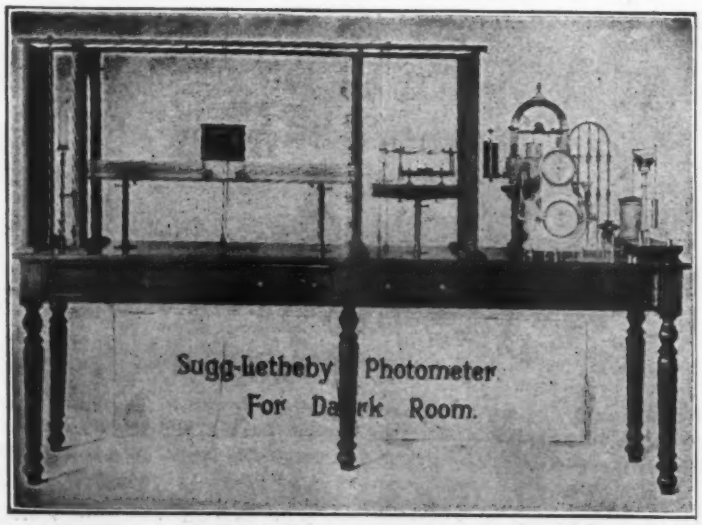
APRIL, 1905.

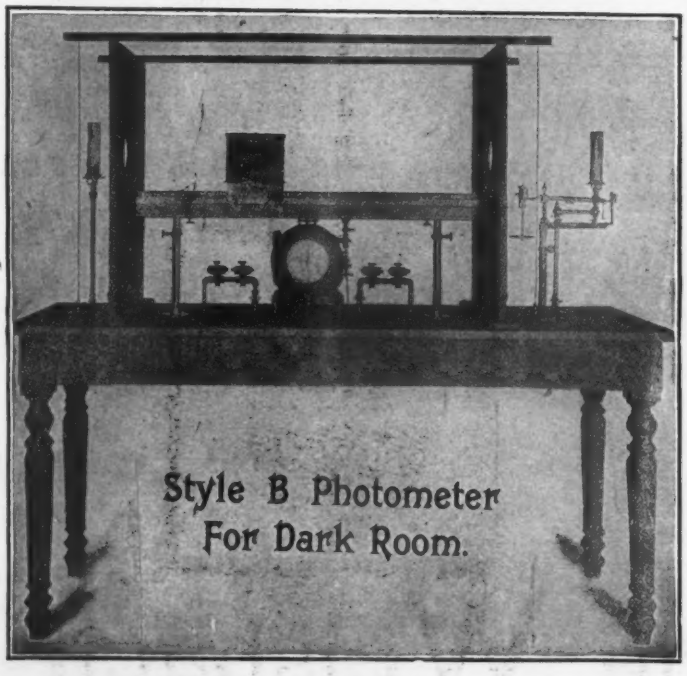
Day of Week.	Date.	Table No. 1. FOLLOWING THE MOON. Light.	Extinguish.
Sat.	1	6.50 PM	4.40 AM
Sun.	2	7.00	4.40
Mon.	3	7.00	4.40
Tue.	4	7.00 NM	4.40
Wed.	5	7.00	4.40
Thu.	6	7.00	4.40
Fri	7	7.00	4.40
Sat.	8	7.00	4.40
Sun	9	10.00	4.30
Mon.	10	10.50	4.30
Tue.	11	11 40	4.30
Wed.	12	12.30 AM FQ	4.30
Thu.	13	1.20	4.30
Fri.	14	2.00	4.30
Sat.	15	2.40	4.30
Sun.	16	3.20	4.20
Mon.	17	No L.	No L.
Tue.	18	No L. FM	No L.
Wed.	19	No L.	No L.
Thu.	20	7.10 PM	9.10 PM
Fri.	21	7.10	10.20
Sat.	22	7.10	11.30
Sun.	23	7.20	12.20 AM
Mon.	24	7.20	1.20
Tue.	25	7.20 LQ	2.00
Wed.	26	7.20	2.40
Thu.	27	7.20	3.20
Fri.	28	7.20	3.50
Sat.	29	7.20	4.00
Sun.	30	7.30	4.00

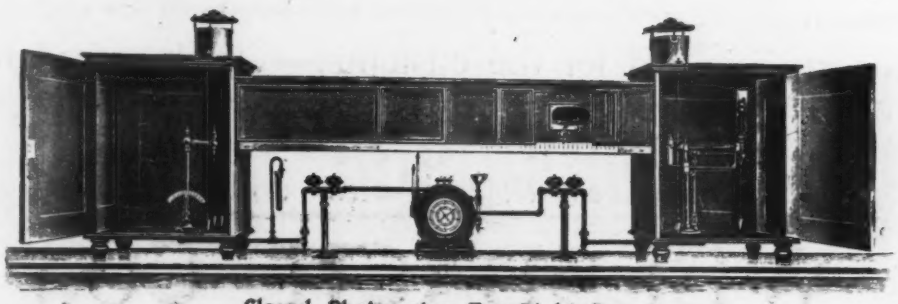
TOTAL HOURS DURING 1905.

By Table No. 1.

	Hrs.Min.
January	240.50
February	192.20
March	207.00
April	175.10
May	161.00
June	139.50
July	149.00
August	161.50
September	173.00
October	205.00
November	211.00
December	229.00
Total, yr.	2245.00







Closed Photometer For Light Room.

CIRCULARS SENT ON REQUEST.

PUBLIC LIGHTING TABLE.

APRIL, 1905.

Day of Week.	Date.	Table No. 2. NEW YORK CITY. All Night Lighting. Light	Extinguish.
		P. M.	A.M.
Sat.	1	6.10	4.55
Sun.	2	6.15	4.40
Mon.	3	6.15	4.40
Tue.	4	6.15	4.40
Wed.	5	6.15	4.40
Thu.	6	6.15	4.40
Fri.	7	6.15	4.40
Sat.	8	6.15	4.40
Sun.	9	6.25	4.30
Mon.	10	6.25	4.30
Tue.	11	6.25	4.30
Wed.	12	6.25	4.30
Thu.	13	6.25	4.30
Fri.	14	6.25	4.30
Sat.	15	6.25	4.30
Sun.	16	6.30	4.20
Mon.	17	6.30	4.20
Tue.	18	6.30	4.20
Wed.	19	6.30	4.20
Thu.	20	6.30	4.20
Fri.	21	6.30	4.20
Sat.	22	6.30	4.20
Sun.	23	6.40	4.10
Mon.	24	6.40	4.10
Tue.	25	6.40	4.10
Wed.	26	6.40	4.10
Thu.	27	6 40	4.10
Fri.	28	6.40	4.10
Sat.	29	6.40	4.10
Sun.	30	6.45	4.00

TOTAL HOURS DURING 1905.

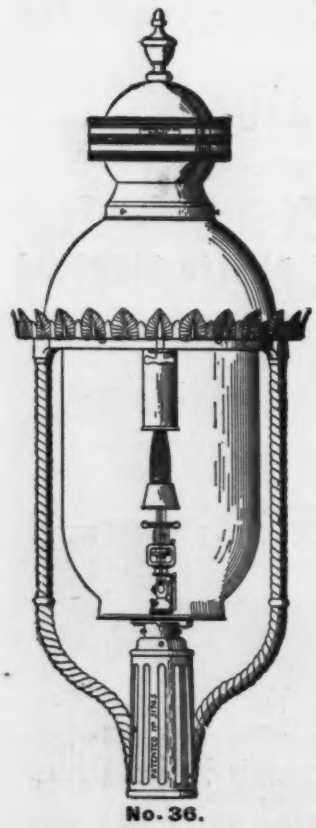
By Table No. 2.

	Hrs.Min.
January	423.20
February	355.25
March	355.35
April	298.50
May	264.50
June	234.25
July	243.45
August	280.25
September	321.15
October	374.30
November	401.40
December	433.45
Total, yr.	3987.45

NEW YORK, 9 Libert Street. BOSTON, 814 Beacon Building. PHILADELPHIA, Broad and Arch Streets. ST. LOUIS, 712 Roe Building. CHICAGO, Foot of Orleans Street. SAN FRANCISCO, 712 Polk Street.

WELSBACH STREET LIGHTING COMPANY

.... OF AMERICA ....



No. 36.

Controls and Operates the

Welsbach System of Street Lighting,

Which includes its specially DESIGNED AND PATENTED BURNER for STREET and PARK LIGHTING exclusively.

Uniformly SUCCESSFUL in 150 Cities and Towns.

By means of the Welsbach System of street lighting the superiority of GAS over electricity for street lighting has been fully demonstrated.

POINTS OF MERIT:

It is { Economical, Attractive, Successful, Up-to-date.

IT LIGHTS THE STREET.

Where there are no gas mains we can furnish an equally good light by our SELF-GENERATING NAPHTHA WELSBACH BURNER, and thereby supply a uniform light in all localities.

Correspondence Solicited from Gas Companies and Others interested in Municipal and Outside Lighting.

No. 38.

AN underlying principle in business is to show an increase each year---to grow. The astute dealer not only seeks to retain this year's customers, but to attract new trade next year.

The formula is simple—

THIS SHIELD IS THE WELSBACH TRADE MARK.

IT IS A GUARANTEE AND A PROTECTION.

Sell The Welsbach Brands.

The imitation stuff is bad for the customer---which is bad for you.

The genuine Welsbachs---Burners or Mantles---make satisfied customers---keep customers---MAKE NEW ONES.

And your profit isn't merely dollars and cents.

WELSBACH CO.,

Broad and Arch Sts., PHILADELPHIA.

THE UNITED GAS IMPROVEMENT COMPANY

For the Year Ending December 31st, 1904, has been Awarded Contracts for 45 Sets of

Standard Double-Superheater Lowe Water Gas Apparatus.

PARTIAL LIST OF PLACES:

Harrisburg, Pa.	**New York City** (14th contract).	**Lynn, Mass.** (5th contract).
Pelham, N. Y.	**New Haven, Conn.** (2d contract).	**Rochester, N. Y.**
Reading, Pa.	**Watertown, N. Y.**	**Battle Creek, Mich.**
Augusta, Me.	**Tampa, Fla.** (3d contract).	**Mechanicsburg, Pa.**
Bangor, Pa.	**Westchester, N. Y.** (3d contract).	**Excelsior Springs, Mo.**
Woonsocket, R. I. (2d contract).	**Bridgeport, Conn.** (2d contract.)	**Bristol, Conn.**
Brooklyn, N. Y. (4th contract).	**St. Paul, Minn.** (2d contract).	**Jersey Shore, Pa.**
Cincinnati, O. (2d contract).	**Springfield, Mass.** (2d contract).	**Vicksburg, Miss.**
Scranton, Pa. (3d contract).		

TOTAL SETS, 1904, ... 45
TOTAL DAILY CAPACITY, 1904, ... 56,325,000 cubic feet.
TOTAL SETS TO DATE, ... 553
TOTAL DAILY CAPACITY, ... 419,180,000 cubic feet.

The United Gas Improvement Company,

Broad and Arch Streets, Philadelphia

Established 1858. Incorporated 1890.

CHAS. E. GREGORY, Prest. DAVID R. DALY, V.-Prest. & Treas.
H. D. ABERNETHY, Sec.

J. H. Gautier & Co.

Greene & Essex Streets,
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CLAY GAS RETORTS, FIRE CLAY TILES, FIRE BRICK and FIRE CLAY SPECIALTIES.

Ground Fire Clay, Fire Sand and Ground Fire Brick in Barrels and Bulk.

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FLEMMING GENERATOR GAS FURNACE

Brooklyn Fire Brick Works,

OFFICE AND WORKS:
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CLAY GAS RETORTS & SETTINGS, GENERATOR LININGS. SPECIALTIES.

Established 1854. Incorporated 1869.

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Fire Brick Manufg. Co.,

Manufacturers of { CAS RETORTS . .
FIRE BRICK . . .
RETORT SETTINGS

Water Gas Cupola Linings, Fire Clay, Etc.

Proprietors for the U. S., Coze System of Inclined Benches.

Estimates Furnished on Application for Most Successful Style of Construction.

Also for Free-Firing and Full and Half-Depth Regenerative Benches, for Burning either Coal or Coke in the Furnaces.

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Cor. Manchester and Sulphur Avenues, St. Louis, Mo.

GEORGE R. ROWLAND,
Formerly with the Continental Iron Works.
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Plans prepared and Estimates furnished at short notice.

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Works at Weber, on the Raritan River, Middlesex County, N. J.

GENERAL OFFICES: Park Row Bldg., N. Y. City.

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With either Horizontal or Inclined Retorts, Half-Depth and Full-Depth Recuperative Furnaces, Adam Weber Patents.

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ISAAC C. BAXTER, President.
Works.
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HENRY MAURER & SON,

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OFFICE, 418 to 422 East 23d St., N. Y.

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BENCH SETTINGS,
Fire Brick, Tiles, Etc.

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A Cement of great value for patching retorts, putting on mouthpieces, making up all bench-work joints, lining blast furnaces and cupolas. This cement is mixed ready for use. Economic and thorough in its work. Fully warranted to stick.

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In Kegs, 100 to 200 " " 6 " "
In Kegs less than 100 " " 7 " "

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LOCUST POINT, BALTIMORE, MD.

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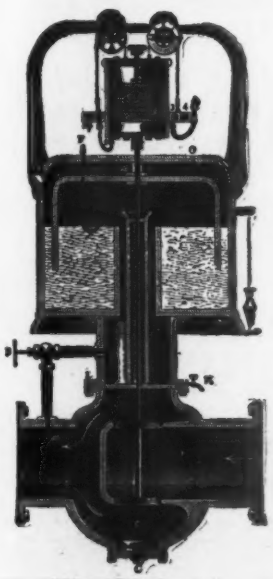

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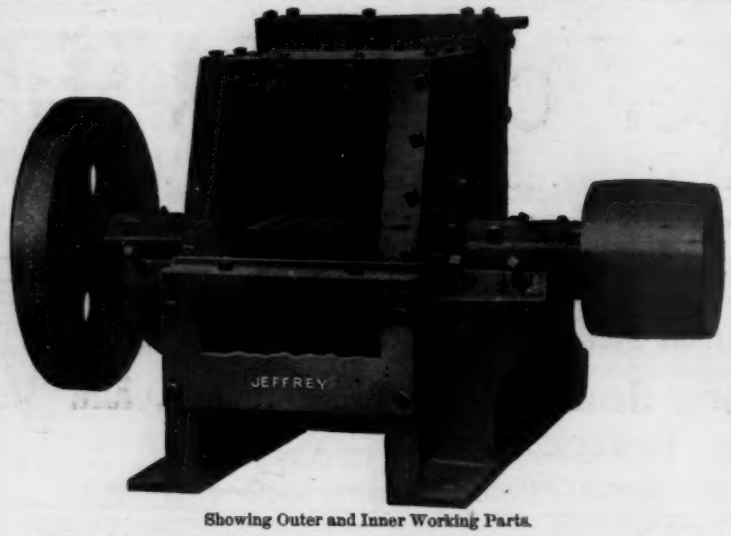

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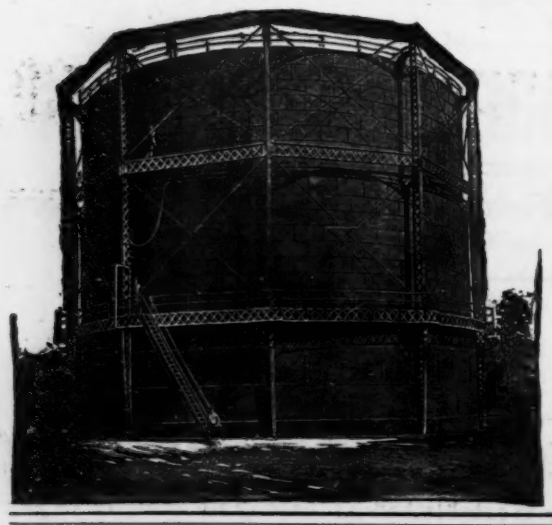

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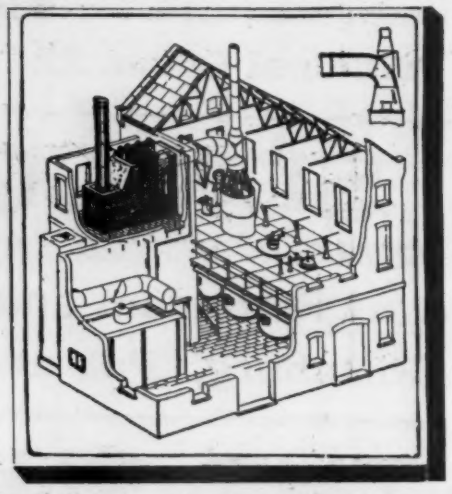

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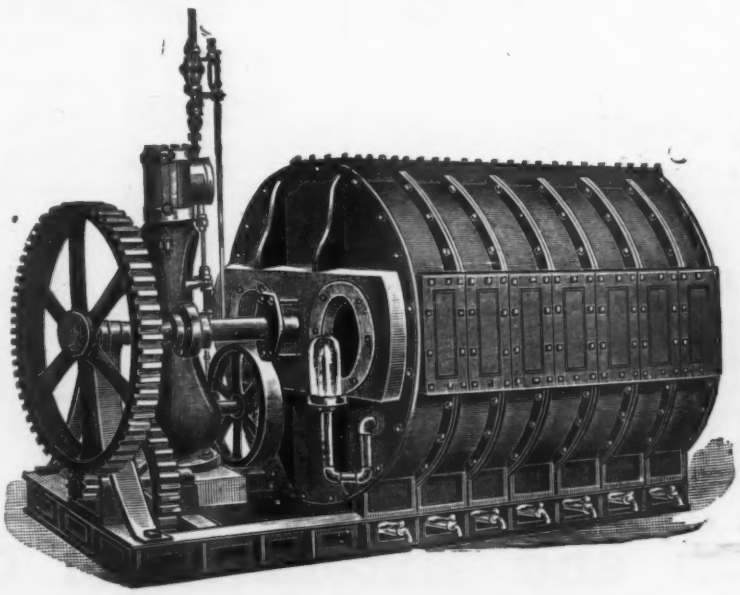

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Size.	8 Inches.	10 Inches.	12 Inches	16 Inches.	20 Inches.	24 Inches	30 Inches.	36 Inches.
Diameter of flanges.....	13 inches	16 inches.	18 inches	22¼ inches	27 inches.	31 inches.	37½ inches	44 inches.
Face to face of flange...	12 inches.	12 inches.	12 inches	14 inches	17 inches	20 inches	21 inches.	23½ inches.

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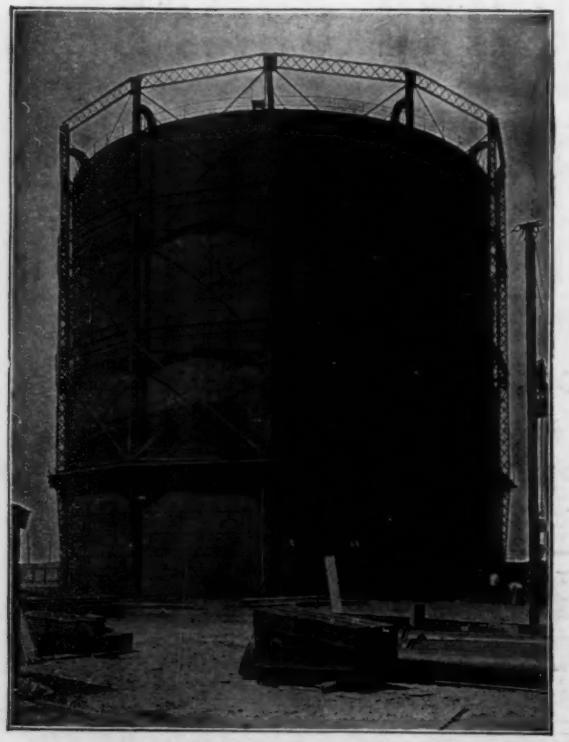

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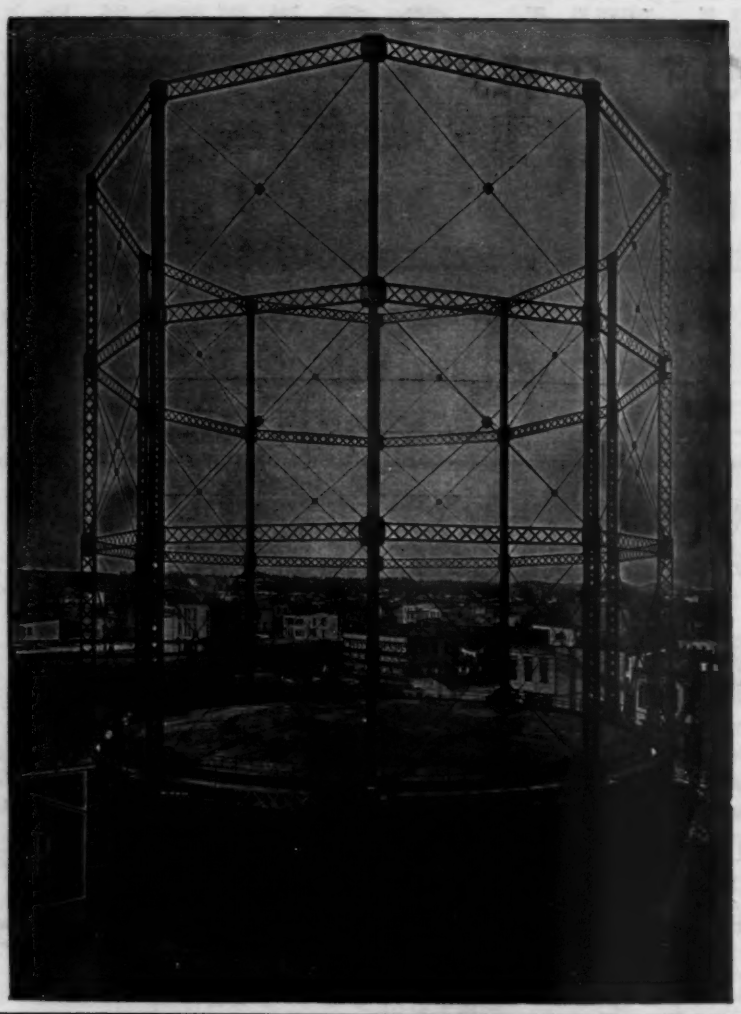

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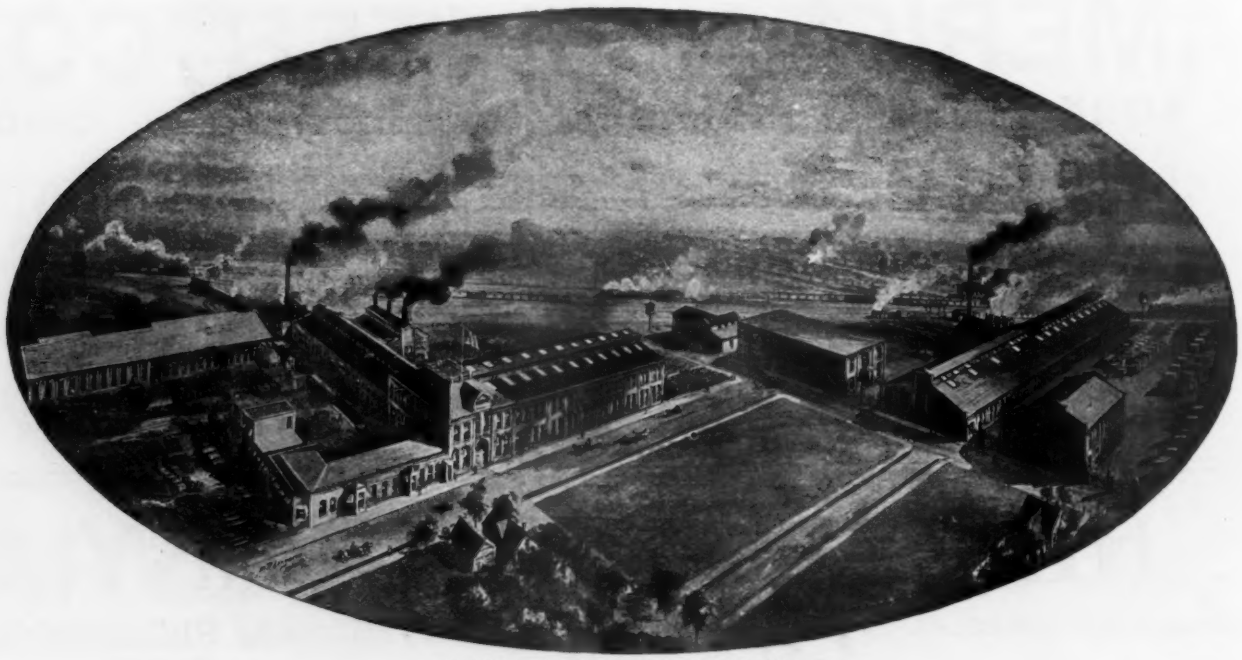

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